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# **YOUNG CHILDREN'S UNDERSTANDING OF LEARNING DISABILITY**

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**A thesis submitted in partial fulfilment of the requirements of the  
University of Northumbria at Newcastle for the degree of Doctor of  
Philosophy**

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## **Revisions**

### **1. Condense chapters 2 and 3 and bring out theory of mind.**

Chapters 2 and 3 are now condensed into a new chapter 2. Theory of mind is covered within “children’s theories of psychology”, pages 34-38.

### **2. Move chapter 5 to appendix.**

Chapter 5 has now become appendix A.

### **3. Expand Diamond critique.**

Added on pages 58-59 as well as reference to British research by Maras and Brown (2000) on page 55.

### **4. Methodologies chapter - summarise relevance of findings to later method.**

Added to end of chapter on pages 88-89.

### **5. Acknowledge school context as possible explanation.**

Chapter 13 is now chapter 11. Points added in discussion on pages 222-223.

### **6. Expand future studies.**

New section, “Implications for future work” added, pages 267-268.

### **7. Minor typos.**

Alterations made as indicated apart from:

page 59/ new page 51 not (omitted) - couldn’t find it!

page 39/new page 17 Hart and Fegley needs a date - I did not give a date as I used the APA guidelines which specified that if a reference is already quoted in a paragraph, it does not require a date if subsequently quoted in the same paragraph. However, I would be happy to put this in if you prefer.

## ABSTRACT

While it is certainly true that children - and adults - with learning disabilities have become more visible within society, we still have inadequate knowledge of people's understanding of learning disability. In particular, there is little or no information about the development of understanding among siblings of children with learning disabilities. The five studies presented here seek to provide relevant information.

The first study forms part of a longitudinal investigation of siblings' conceptions (a) of their brothers' and sisters' disabilities; and (b) of the implications of these disabilities upon themselves and their disabled brothers and sisters.

The next three studies compare (a) understanding of learning disability; (b) perceived social acceptability of children with learning disabilities; and (c) attainment of the normative concept of ability, amongst the siblings of children with severe and profound disabilities, children who have contact with others with disabilities in school and children who have no contact. These three studies identify children as young as 4 who are able to predict the difficulties that will be experienced by a child with severe learning disabilities, and children as young as 5 who can use adult-type explanations for why these difficulties occur. Having an older brother or sister with a learning disability promotes understanding. It is suggested that children's social experiences, - particularly language - facilitate early understanding, and that children who possess greater understanding of a disabled child's difficulties are consequently more likely to rate this child as having lower perceived social acceptability. The findings from these studies may help families and teachers who are concerned about young children's understanding and acceptance of other children with learning disabilities.



The final study considers the adult general public's understanding of learning disability and was conducted in order that investigation with children could be considered within the context of adults' understanding.

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## **CHAPTER 1**

### **BACKGROUND AND INTRODUCTION**

#### **Introduction**

Children with learning disabilities are today much more visible in society than they have been in the past. Part of the reason for this has been, since 1971, an acceptance of the view that children should no longer be receiving residential hospital provision, but be cared for in their local communities (HMSO, 1971). Subsequently they have been increasingly integrated within education, pre-schooling and leisure opportunities. In addition, despite the declining incidence of some conditions due to better prevention, medical advances have resulted in a greater number of children surviving with learning disabilities who might previously have died (Fryers, 1984; HMSO, 2001).

As more children with learning disabilities stay at home, so there are more parents, grandparents and siblings who have to confront the reality of disability. While there is a wide-ranging literature on how adults should be told about disability (Cunningham, Morgan and McGucken, 1984); about their responses (Quine and Pahl, 1987); and about the impact on siblings of having a brother or sister with a learning disability (Gallagher and Powell, 1989), there is very little on how young children, and siblings in particular, come to understand learning disability (Lewis, 1988; Maras and Brown, 1992). Consequently, it can be difficult for parents to gauge the extent to which young siblings know of and understand learning disability, and there is a dearth of material to guide them (McConachie, 1991). Parents may well worry about what

they should tell siblings, and how they should answer their questions. In turn, siblings with disabled brothers and sisters who are integrated into their local community, may worry about their friends' knowledge and beliefs about learning disability and how they are to answer their friends' questions.

Both in this country and abroad children with disabilities are being increasingly integrated into mainstream education (Thomas, Walker and Webb, 1998). In an integrated classroom, teachers may be unsure about the extent to which young children understand and accept their disabled peers, and what sort of information should be given to children (Lorenz, 1998). Staff and other adults may be able to aid the integration process in schools, if they possess a clearer understanding of what children broadly know and understand about their learning disabled peers.

Within the research field which does examine what children know about learning disability, there is little work which has looked at the ways in which very young children develop this knowledge. Research with pre-schoolers has tended to concentrate on their interactions with disabled others (Okagaki, Diamond, Kontos and Hestenes, 1998). The majority of other investigations have usually been with school-aged children, examining children's verbal descriptions of disabled others (e.g. Lewis, 1993, 1995). Studies have not concentrated on how this knowledge is acquired, so we do not know, for example, whether understanding is influenced by social and environmental factors (such as exposure to disabled others and talk about disability) or whether it is dependent upon language acquisition or other maturational factors. A valuable way to examine this question is to investigate the understanding of learning disability displayed by siblings who have day-to-day contact with disabled brothers

and sisters, and to compare this with the knowledge of peers who have little or no contact with disability.

## **Background**

During a course for the parents of children with learning disabilities, a discussion emerged about whether or not siblings should be told that their brother or sister had a learning disability.<sup>1</sup> From this initial discussion developed a study in which the parents of 20 children with Down's Syndrome were asked whether they had told older siblings about the diagnosis (Hames, 1994). The majority of siblings had been told immediately after medical diagnosis and parents felt that this was appropriate. Some siblings, from as young as 2 1/2 years, had commented on the differences between children with and without Down's Syndrome, and all parents thought that they should respond to these comments. Siblings under school age tended to misinterpret disability as an illness and expected that their brother or sister would get better. Generally, the explanations to children and questions that children asked changed as the children became older. This process of presenting and re-presenting information has been recognised in other areas also (for example, in telling children about adoption; Brodzinsky, Schechter and Brodzinsky, 1986). As children's cognitive abilities change, so they can absorb more information. In particular, as they learn to differentiate themselves from others, they become more curious about others' behaviour (Dunn, 1991a) and so the questions that they ask give an insight into their developing understanding of others. This study only gave a snapshot into children's understanding, which could be better examined by a longitudinal study.

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<sup>1</sup> "Siblings" refers to non-disabled children, and brother, sister and children to disabled children.

In a second study (Hames, 1997, 1998), ten families who had a child with a learning disability and then subsequently had a sibling without a disability, were visited on a twice yearly basis for 5 years. Interviews were carried out with parents, the aim being to clarify the younger siblings' understanding of their older brother or sister's disability. When they were first visited, the siblings were aged between 4 months and 2 years and were all pre-verbal. Their older brothers and sisters were aged from 21 months to 4 1/2 years. By the end of the study all the siblings were of school age, all had overtaken their older brothers and sisters in both cognitive and motor abilities, and all had indicated that they had developed some understanding of their older brother or sister's disability.

Initial findings (Hames, 1998), illustrated how some of the youngest siblings went through an early period of wanting to be like their older brother or sister. Evidence seemed to suggest that the more obviously profoundly disabled their older brother or sister, the more they wanted to be like him or her. All but one of the siblings of the children with profound physical and learning disabilities and the sister of one child with Down's Syndrome illustrated this wish by, for example, wanting to be carried up and downstairs like the older brother or sister, wanting to lie down with a dummy in the mouth, and one little girl who wanted Down's Syndrome like her older sister. Hames concluded that precisely because an older child's disability was so visible, so it became more interesting and important to the younger, non-disabled sibling. However many of these young siblings soon stopped copying their older brother or sister and started copying their parents. This occurred from the age of 2 for siblings of children with profound learning and physical disabilities, and from the age of 3 for siblings of children with profound learning disabilities alone. From this time, the

behaviours exhibited by the younger siblings appeared to be typical of the sorts of behaviours usually exhibited by young children towards younger children or babies (Rheingold and Emery, 1986). Common behaviours included getting nappies and dummies and bringing out developmentally appropriate toys which they had seen parents provide for their older brothers or sisters. Some parents spontaneously commented that they thought that the younger siblings were already acting as though they in fact were the oldest (Hames, 1998).

A further paper looking at comments made by the same children when they were older (Hames, 1997) illustrated a difference in the gradual understanding of disability between those siblings who had brothers and sisters with profound learning disabilities and those who had brothers and sisters with mild to severe learning disabilities. For the younger siblings of children with profound learning disabilities, and particularly those who were also not mobile, there were relatively few comments and questions about their brother or sister's disability, and these tended to focus on their brother or sister's mobility, feeding and language. Initially these comments and questions concerned current skills (e.g. "why can't she walk?" "why doesn't he talk?"). From the age of 4, there were additional questions about whether these skills would change in the future (e.g. "will she be able to eat an ice-cream when she is older?"). As the physical disabilities of these children were so obvious, it may not be surprising that they were the main topics of conversation. As the younger siblings started acting as though they were older, it seemed to their parents that they were treating their older brothers and sisters as younger babies or even as individuals who were quite different to themselves. For example, one mother described how her two youngest and non-disabled children were surprised to find that children who were

mobile and not significantly disabled were attending the same playscheme as their older profoundly disabled sister; they seemed to think that children in wheelchairs should go to one playscheme, and those who could walk should go to another. Comments and behaviours such as these suggested that the siblings of children with profound learning disabilities, and particularly those with additional physical disabilities, saw their brothers and sisters as quite different to themselves, were less likely to make comparisons with them, and consequently were less likely to become aware of their brothers' and sisters' cognitive limitations.

On the other hand, evidence from this study suggested that the siblings of children with mild to severe disabilities developed a different understanding of disability, which seemed to develop at a slower rate. Not until the age of 3 or later did parents report that siblings started to comment on differences, though the range of comments and questions was much wider, for example "Michael's special", "I can walk better than Natalie", "I play better with toys" (Hames, 1997). The comments and observations came independently from the children, without explanation from the parents. By the age of 4 1/2, one little girl was able to tell her parents "It takes Laura a long time to learn things". Thus it became clear that those siblings who had spent more time believing that their brothers and sisters were the same as themselves, were now beginning to recognise that not only were their brothers and sisters slower in motor and language skills, but that they also had cognitive limitations.

During the last two visits to the families (Hames, unpublished), when the younger siblings were aged between 5 and 7 years, some of the parents described how these children were in a transitional and confused stage of understanding. This was

illustrated by Steven who was 5 1/2 and had an older brother Michael who at the time was nearly 7. Michael has Down's Syndrome and a severe learning disability. Due to the two brothers' closeness in age, and because of Michael's good gross motor skills, they had been able to play as equals until shortly before Michael started school. Steven knew that Michael had started school before him and that Michael was older. However, on being told that he had a "big brother and sister", he accepted his older sister but would say "No, Michael's a baby". From the age of 4, Steven had started to "keep an eye" on his older brother Michael, telling his parents if Michael put anything in his mouth or did anything which he had been warned not to do. From this time he had also started calling Michael a "baby", despite being discouraged by his parents. It seemed that Steven thought that someone who needed looking after (especially when his parents responded to his supervisory tendencies), must be like a younger brother; when told that Michael was older he appeared to be confused and found it difficult to make sense of the daily contradictions which Michael presented to him.

This research has raised questions about the way these young siblings make sense of their brothers' and sisters' development. Initially they saw their brothers and sisters as the same as themselves, but then at a later stage - dependent on the severity and nature of the disability - developed an awareness of differences, eventually including cognitive differences.

However, the question of what a concept as abstract as learning disability really *means* to such young children remains unanswered. Indeed, how can they develop this understanding? Research in other fields has suggested that pre-school children do not use nor understand abstract concepts. For example, studies of children's

descriptions of others have suggested a clear concrete-abstract developmental progression with abstract descriptors not occurring until about the age of 7 years. The early work of Livesley and Bromley (1973), in which children were asked to describe their friends, concluded that those under the age of 7 tended to describe them in terms of outer attributes such as physical appearance and clothes, whereas older children were able to use inner, psychological attributes. This was later extended by Damon and Hart (1988) who invited children to describe themselves. They observed four categories of description: physical, active, social and psychological. The physical (or concrete) and active terms were common among children under 7, while psychological self-attributes were more common among older children. Social self-descriptions, in which children described themselves in terms of family and peer relationships, only emerged during early adolescence.

A further refinement was added by Eder's (1990) study of children's understanding of personality. She suggested that while children as young as 3 can understand temporary and common internal states, such as "feeling happy" or "wanting a drink", it is not until they reach 7 that they become aware of and understand enduring dispositions or traits, such as aggressiveness and intelligence. It may be that the momentary mental states are easier for younger children to identify as they tend to be linked to specific instances of behaviour, whereas dispositions refer to a combination of several behaviours subsumed into a global category.

All of these studies illustrate the ways in which very young children concentrate on concrete perceptual evidence; further, they suggest that only from the age of about 7 can they integrate different pieces of information over time and look for consistencies



and patterns, which allow them to understand the more abstract properties of things and people around them.

The results of the siblings' research described here do not fit with these findings. They offer the possibility that understanding of disability may not purely depend upon a model which proposes that children can only understand abstract concepts when they reach the age of 7, but that intimate social contact with a disabled other may facilitate earlier understanding of the abstract nature of disability. The mechanisms by which this may occur are not yet clear.

It is possible that, if appropriate methodologies are used with pre-school children, then it may be that many more of them will be found to be able to understand abstract issues which at first may have seemed too difficult for them to comprehend. Certainly in other fields, such as object permanence (Baillargeon, Spelke and Wasserman, 1985) and analogical reasoning (Goswami and Brown, 1989), sensitive methodologies have resulted in pre-school children illustrating a much greater understanding of their world than had previously been supposed. One of the aims of the following studies will be to examine the use of appropriate methodologies with pre-school children.

### **Social acceptance**

Numerous studies have identified how young children are attracted to others whom they perceive as similar to themselves. They show preferences for children of the same gender and age (Hartup, 1976; Maccoby, 1988) and ethnic group (Ramsey and Meyers, 1990). Beyond surface similarities, they make friends with others who have

similar linguistic skills, behavioural adjustment and temperament (Cutting and Dunn, 1999) and who display similar cognitive play styles and levels of social participation (Rubin, Lynch, Coplan, Rose-Krasnor and Booth, 1994). Once a friendship is established, children proclaim and emphasise similarity when with their friends (Howes, 1988; Rizzo, 1989).

While the majority of young children form friendships early in their pre-school years, which show considerable stability (Howes, 1988) and provide significant sources of support during potentially stressful life changes (Kramer and Gottman, 1992; Ladd and Kochenderfer, 1996), children with learning disabilities find it difficult to develop such relationships. Observations of children's interactions in integrated classrooms have typically identified that children with learning disabilities are more likely to play in isolated and noninteractive ways (Guralnick and Groom, 1987) and are less likely to be chosen as friends by disabled and nondisabled peers (Guralnick, 1990).

However, children in integrated pre-school programs have been found to be significantly more accepting of children with disabilities than their peers who have not experienced contact with children with disabilities (Diamond, Hestenes, Carpenter and Innes, 1997; Favazza and Odom, 1996). It has been suggested that if children are integrated with children with learning disabilities at an early age, this results in more positive attitudes and preferences towards children with disabilities as they are more likely to be incorporated into non-disabled children's "schema of normality" (Sigelman, Miller and Whitworth, 1986).

If a child is brought up with an older brother or sister with a disability, it may be even

more likely that children with disabilities will be incorporated into the younger sibling's "schema of normality". Certainly, unprompted reports from parents during previous research (Hames, 1997, 1998) suggested that during their pre-school years, these younger siblings were very accepting of their older brothers' and sisters' disabilities and were very adaptable when devising games in which they could all participate. Since contact in education has been found to have some impact upon social acceptability ratings, so it could be expected that contact at home would have a similar effect.

### **Normative concept of ability**

Just as the research quoted earlier suggested that children under the age of 7 do not appear to be able to understand abstract concepts, so research into children's capacity to make social comparisons (Ruble, 1983) and norm-referenced judgements of ability (Nicholls and Miller, 1984) suggest that these also do not occur until after the age of 7 years. Since the capacity to judge the relative ability of another is presumably similar to the capacity to judge the relative disability of another, the studies which follow offered the possibility of comparing children's understanding of disability with their attainment of the normative concept of ability.

### **Introduction to the chapters, studies and hypotheses**

Five studies will be presented here, forming a progressive exploration of the development of young children's and adults' understanding of learning disability. Below is a summary of all the chapters including the five studies.

Chapter 2 is a literature review of research into very young children's developing understanding of themselves and others and summarises socio-cognitive models of child development and research regarding young children's theories of selective aspects of their world.

Chapter 3 is a literature review of studies investigating adults' and children's understanding of ability and disability, including physical and learning disabilities.

Chapter 4 (study I) is a longitudinal descriptive study, following the siblings of children with learning disabilities who were involved in previous research (Hames, 1997, 1998). Whereas previous research had involved interviews with their parents, in this study the siblings were interviewed themselves, in their home environment, and asked about their conceptions of their brother or sister's disability and the implications of this condition upon their brother or sister and themselves.

Chapter 5 reviews research techniques with young children, highlighting particular aspects which are important to consider when gathering information from pre-schoolers and young school-age children.

Chapter 6 is the first of four chapters describing the development of the methodology to be used in studies II, III and IV. This first chapter concerns the assessment of attainment of the normative concept of ability - the capacity to differentiate difficulty and ability. Adaptation of the wording in the traditional assessment results in an

improved assessment which is used in studies II, III and IV.

Chapter 7 describes the interview, questionnaire and categorisation of responses for studies II, III and IV. The methodology employs both a quantitative and qualitative design.

Chapter 8 describes the application of the interview described in the previous chapter with a group of adults. This made it possible to identify mature responses to the design.

Chapter 9 describes a pilot of the design with a group of children to ensure that there are no gender differences.

Chapter 10 (study II) is a controlled investigation of young children's understanding of ability and disability and explores the hypothesis that contact with learning disability will promote young children's understanding of ability and disability. Responses to a video of a child with a learning disability from young children who did and did not have a sibling with a learning disability were compared. Children between the ages of 3 and 7 were involved in this study, the majority of whom would not normally be expected to have developed an understanding of an abstract concept such as learning disability. It was hypothesised that children would show an earlier than expected understanding of issues related to ability, disability and the transferability of skills. In addition, if understanding is aided by social and environmental factors, then the siblings of children with learning disabilities would gain an earlier understanding of learning disability than similarly-aged children who

did not normally have contact with people with learning disabilities. Children were also assessed with an adaptation of Harter and Pike's perceived competence and social acceptance scale (Harter and Pike, 1984). It was hypothesised that having a brother or sister with a disability would have some impact upon ratings of social acceptance of a child with a learning disability and that children who displayed greater understanding of learning disability would differentially rate the social acceptability of a disabled child. It was not clear whether disabled children would be considered to be more or less socially acceptable. Finally, children were assessed on their concept of normative ability and it was hypothesised that children who were siblings of children with disabilities and children who had greater understanding of learning disability would also develop an earlier understanding of the normative concept of ability.

While there were some significant differences between the experimental and control children in study II, it became clear that there were a number of differences within families in the experimental group (families who had a child with a learning disability). An alternative method of assessing the impact of contact on understanding and knowledge of learning disability was to compare one group of children which contains members with a learning disability with a similar group which does not contain children with learning disabilities. This was the method employed in study III.

Chapter 11 (study III) is a further investigation of the hypothesis that contact assists understanding of ability and disability by comparing children who were and were not integrated at school with children with learning disabilities. The children were in

reception (4-5 year olds) and year one (5-6 year olds) and would not normally be expected to understand abstract concepts. They were interviewed using the same methodology as in study II. Once again it was hypothesised that if understanding is aided by social contact, then children who were integrated with disabled peers would develop an earlier understanding of learning disability. It was also hypothesised that these children would rate children with disabilities as being more socially acceptable and would develop earlier understanding of the concept of normative ability.

One of the differences which was identified between the families in study II was that they came from diverse social backgrounds. Chapter 12 (study IV) specifically assesses the effect of socio-economic status on responses to the interview. In addition, this study allows for examination of responses from slightly older children. A group of year two children ( 6-7 year olds) and year four children ( 8-9 year olds) from two schools in middle and working class areas were interviewed. While it was not clear what effect social class would have upon understanding, it was hypothesised that there would be differences in the explanations given by children from middle and working class backgrounds. It was also hypothesised that there would be no differences in ratings of social acceptance of the disabled child but that children from middle class backgrounds would be more likely to have achieved normative concept of difficulty and ability.

Chapter 13 provides an overall summary to the research field and attempts to answer the questions raised at the start of this work.

Finally, appendix A describes an investigation of the adult general public's

understanding of learning disability. Whereas there has been limited investigation of the general public's understanding of intelligence (Sternberg, Conway, Ketron, and Bernstein, 1981), there is very little investigation of adults' understanding of learning disability. As has been pointed out elsewhere (Glasberg, 2000), if we are to investigate children's understanding of disabilities, this is better understood in the context of the general public's understanding.



## **CHAPTER 2**

### **CHILDREN'S UNDERSTANDING OF SELF AND OTHERS**

#### **Introduction**

In order to describe and then construct a model of how young children come to recognise and understand an abstract concept such as learning disability it is necessary first to examine how children come to think about themselves and about others. This can be done by observing what they do and what they say within their social environment. When this developmental information has been gathered it can be organised into a framework, or model, of what is called child socio-cognitive development. A model of child socio-cognitive development provides both a description and an analysis of the process of understanding self and others (Hala, 1997). This chapter will describe infants' early and developing understanding of themselves and others, examine some of the proposed models of children's socio-cognitive development, and then look at research which highlights young children's "theories" of their world, and particularly their theories of the mental world of others. The research reported in this chapter refers to non-disabled infants and children.

#### **Concept of self**

Clearly it is difficult to investigate young babies' sense of self, because of their inability to describe their own experiences. One of the most well-known experiments to overcome the problems of working with pre-verbal babies has concentrated on visual self-recognition and is known as the "spot on the nose" test (Lewis and Brooks-Gunn, 1979). The infant is placed in front of a mirror and his/her behaviour

observed. S/he is then removed, and a spot of rouge is surreptitiously applied to his/her nose before being placed again in front of the mirror. Children who reach for their own nose rather than the nose in the mirror are regarded as possessing a sense of self-awareness. By using other media such as video and photographs of the children and others, Lewis and Brooks-Gunn illustrated how some children begin to show signs of self-recognition from 9 months, and this is evident in most infants by 21 months.

As there is such variation in the ages at which children first develop mirror self-recognition, some researchers have searched for explanations for this. Surprisingly, Lewis and Brooks-Gunn (1979) found no evidence that amount of experience with mirrors influences self-recognition. However social experiences have been found to play an important role in facilitating this early cognitive development. Infants who are securely attached to their caregivers develop earlier mirror self-recognition than infants who are insecurely attached (Pipp, Easterbrook and Harmon, 1992, though later questioned by Hart and Fegley, 1994). Also, frequent interpersonal imitation is related to earlier emergence of mirror self-recognition (Hart and Fegley, 1994). It has been suggested that attainment of this mark-directed behaviour is an indication of the development of a mental model of self (Hart and Fegley, 1994). Once infants have developed a mental model of self, then they can quickly assimilate visual images of themselves. Before attaining a mental model, experience with mirrors will be of no use.

Further support for the view that infants are developing a mental model of self at this age comes from the observations that by the end of the second year of life children are

beginning to use self-related terms such as “I” and “me” and are able to say, as well as recognise their own names (Kagan, 1981). They will also utter their own names or personal pronouns in response to seeing their own picture (Lewis and Brookes-Gunn, 1979). Shatz (1994) in her personal account of the development of her grandson described how at 21 months old he was already talking about himself as an intentional being, announcing his intentions before his actions. Evidence such as this suggests that children have an awareness of self as a physical and separate entity by the end of their second year.

At the same time, or shortly after developing a concept of self, young children begin to be aware that they, and others, can meet normative standards. Towards the end of their second year, young children develop the ability to recognise standards, become aware of violations of standards and can judge their own abilities to meet standards. This has been described by Kagan (1981) who observed that between 18 and 24 months children begin to comment and show concern about objects which have flaws (using words such as “yuk” and “broke”); they become distressed for the first time as they realise that they cannot imitate an adult’s actions; they occasionally articulate their perception of their own goal competence by saying “I can’t” or by requesting help; and show what are called “mastery smiles” - smiles that are contingent on completion of some goal-directed activity. From 21 months they will call their mother’s attention to their achievements (Stipek, Reccia and McClintic, 1992).

Dunn (1988), in her observations of young children at home with their mothers, has supported Kagan’s findings by noting the increased interest during the second year in communication that is initiated by the infant about objects that are broken, dirty or out

of place.

Having developed a concept of self as indicated by self-referential behaviour in the spot-on-the-nose test, the ability to recognise standards and an awareness of own ability to meet these standards, children are now able to evaluate their own performances and show recognisable emotions. Work by Lewis (Lewis and Brooks-Gunn, 1979) has illustrated how only from the age of two do children show signs of pride when completing a difficult task - raising their eyes, smiling, looking triumphant and throwing up their arms - and signs of shame following failure - lowering eyes, collapsing their bodies and making negative comments about their performance. Stipek et al. (1992) have suggested that this development of self-evaluation can be divided into three distinct stages. In the first stage, children under the age of 2 years derive joy from their achievements yet take little notice of adult reactions. During the second stage, beginning just before they are 2, children anticipate and seek adult approval and endeavour to avoid negative reactions to failure. Finally, towards the end of the pre-school period, children begin to respond to their successes and failures in terms of their own standards, without having to constantly refer to someone else for approval.

### **Concept of others**

Alongside the concept of self, children are also developing a concept of others. However it is not purely a matter of one before the other, but rather a more complicated process as illustrated in a study by Pipp, Fischer and Jennings (1987). Children between 6 months and 3 1/2 years were given a series of tasks to assess

knowledge of self and mother. This included *feature recognition* - the ability to recognise someone's appearance, including the spot-on-the-nose test applied to both child and mother, and *agency* - the understanding that individuals are active, for example by asking children to pretend to feed self or mother. For feature recognition, it was discovered that knowledge of mother preceded that of self; for agency, knowledge of self preceded that of mother. This is maybe not surprising since infants see more of their mothers' features than their own, but have more experiences of their own actions than of the actions of other persons.

According to some theorists, it is not the concept of self or other that is important, but rather the *relationship* between mother and child. Attachment theorists have argued that children initially experience undifferentiated relationships with their carers out of which develop models of self and the attachment figure. This model suggests that social experiences facilitates the development of cognitive knowledge. Some indirect support for this comes from the findings of Pipp, Easterbrook and Harmon (1992), that securely attached infants develop self-awareness before insecurely attached infants and Pipp, Easterbrook and Brown (1993) who found that securely attached infants have a more highly developed featural knowledge of themselves, mother and father. What these studies do illustrate is that the concepts of self, other and the self/other relationship are very closely intertwined.

The process that clearly facilitates the development of sense from other is neonatal imitation. Remarkable degrees of imitation of others have been identified and studied in very young babies. From as young as 1 hour to 6 weeks of life, babies can imitate simple movements of the face, head and hand modelled by an adult (Meltzoff and

Gopnik, 1993). At 6 weeks of age, infants can produce “deferred imitation” after a 24 hour delay, even if the adult faces the baby with a passive face (Meltzoff and Moore, 1994). Meltzoff and Moore have suggested that the young infant is actively acting upon his/her social environment, in a constructivist manner. He/she is using imitation to identify people, checking to see whether this is the same or a new social experience. In this fashion, the young infant can construct meaning from his/her experiences. Of course adults imitate infants too, and studies of mother/baby interactions have identified the highly co-ordinated process whereby mothers reflect their babies’ spontaneous noises and gestures, babies pay special attention to these interactions, leading to deliberate reproductions by the babies (Pawlby, 1977). Soon infants realise that human beings are special objects with whom they can interact, so they begin to learn and enjoy the ways in which their and others’ behaviour can be predictably contingent, and games such as pat-a-cake and peek-a-boo become popular (Gustafson, Green and West, 1979). In this manner, young infants discover that we can affect each other in ways that are unique to human beings, and so they develop their earliest concept of person (“here is something like me”, Meltzoff and Gopnik, 1993).

During their first year, young babies have been described as displaying primitive forms of empathy. They become distressed and match the cry of another baby, but are not distressed if they hear a recording of their own crying (Dondi, Simion and Caltran, 1994). While they probably do not yet appreciate the other’s internal state, they are making some attempt to match and be with another person separate from themselves.

By the end of the first year babies are aware that humans have independent movement. They show surprise at the movement of a non-human object such as a self-propelled chair and recognise that humans are potential agents of action and not just passive recipients of their own actions (Poulin-Dubois and Schultz, 1988). At this age there is also an emerging understanding of shared internal experiences: social referencing (referred to earlier). One year olds will watch their mothers' expressions, approaching a toy which she has associated with delight and using her fearful expression towards another toy as an external cue for an internal experience of fear or worry, and act appropriately (Tomasello, 1995).

During their second year of life babies begin to show real empathic prosocial behaviour (Zahn-Waxler, Radke-Yarrow, Wagner and Chapman, 1992). If babies see someone else in distress, they will offer something that will comfort themselves, and for this reason this has also been called "egocentric empathy" (Hoffman, 1982).

Other behaviours at this age indicate that a baby is developing an awareness of others' separateness and others' separate mental states. Dunn (1988) has observed teasing of siblings from babies of 16 months and Reddy and Williams (2000) have suggested that teasing can occur from before the age of one year. Franco (1995) has described the increase in declarative pointing from 12-18 months, with more checking before pointing as the social partner moves further away from the baby. Shatz (1994) has described how one of the enjoyments of pretend play during a child's second year is violating others' expectations. Young children's developing understanding of others' separate mental states will be returned to in discussion of children's "theories" of psychology.

## **Models of socio-cognitive development**

In building a model to explain the development of socio-cognitive understanding, there has been some degree of conflict. One area of dispute relates to the question of whether cognitive development precedes social development (Piagetian theory) or whether it is social experience which facilitates cognitive understanding (Vygotsky's theory). Secondly, is the issue of children's understanding of their social and physical world. The Piagetian view upholds that people and objects are the same for young children and so, for example, the onset of separation anxiety at around nine months is explained as being due to the infant having developed the concept of object, and person, permanency. Other researchers disagree with this view (Hala, 1997).

Of course there are numerous other models of child development, which can at times appear contradictory and confusing. However, as Schaffer (1996) has pointed out, developmental psychology is a relatively new field and older theories have to be continually tested, adapted, and discarded if they do not fit. Even Piaget's theory has been continually adapted; indeed, Piaget considered himself to be one of the chief "revisionists of Piaget" (Piaget, 1970).

One of the most influential theories of human development has been behaviourism, due primarily to Watson (1913, 1928). While there is some room for learning through behavioural associations, behaviourists' attempts to use their theory to explain all of developmental learning have quickly been abandoned and there have been no attempts to build a behavioural model to explain social-cognitive development.



Social learning theory developed as an attempt to maintain the scientific rigour of behaviourism whilst applying it outside the laboratory, and to take account of the extent to which children contribute to their own learning and development. Bandura (1989) described how children acquire much of their development purely through observational learning. While children clearly learn through imitation, the scientific rigour of the experimental conditions of social learning theory are far from the real life situations in which children find themselves. A further problem is that this model does not contain a developmental perspective and contends that observational learning will tend to be the same whatever the age of the child.

Ethology refers to the study of the behaviours which animals have developed and adapted in order to cope within their environment. Ethological theory is particularly important in explaining the abilities of young babies, whose experiences are limited, and have therefore had little opportunity to learn through other means. Bowlby (1969, 1973, 1980) was among the first researchers to recognise the value of the ethological model to child development when he developed the concept of attachment. As a general orientation rather than a theory of child development, the particular contribution of ethology has been that it has encouraged a move towards greater observations of children in their natural environments.

Ecological systems theory is an attempt to provide a theoretical framework which explains the influence of social networks upon child development. It emphasises that behaviour takes place in a context and that this context in turn influences behaviour. Ecological theory does not negate any of the theories discussed so far, but emphasises that each individual child's development must be studied within that child's social

context.

Returning to Piaget's view of development, another relevant area of debate has been whether cognitive development develops in a domain-general way, with across-the-board changes occurring at each developmental stage or whether children begin with, and develop along domain-independent structures, each development being separate from others (Wellman and Gelman, 1992). The rest of this chapter will examine recent research into the ways in which young children have been found to develop their own "theories" of physics, biology and psychology.

### **Domain-general v domain-specific approaches**

Piaget's theory has been described as a domain-general approach. This means that at each stage - pre-operational, concrete operational and formal - across-the-board changes in the nature of thinking occur, independent of cognitive content. At each stage the child is thinking in quite different ways. The appeal of the domain-general approach is the ability to explain a broad range of developmental changes within very few stages. However, as research continues to question Piaget's experimental methods in particular, so there have been moves towards suggesting that children may have domain-specific structures rather than domain-independent structures. The term *domain* has been described in a number of ways but is generally understood as comprising children's knowledge and beliefs which they organise into naive theories (Wellman and Gelman, 1992). A *theory* is not just a competency based on simple associations with past experiences, but must be capable of being applied to new situations. While it has been suggested that pre-school age children may possess up to

a dozen domains (Carey, 1987), it is generally accepted that naive theories of physics, psychology and biology comprise the basic domains (Wellman and Gelman, 1992). Of course the view that pre-school children can have organised bodies of knowledge involving causal explanations is contradictory to the Piagetian view of the pre-operational child.

Research which has questioned Piaget's views and lead to suggestions of domain-specific structures has done so by simplifying the assessment tasks for infants and young children and stripping away unnecessary processing demands. The simplification is not solely about reducing task demands, but more in the sense of accommodating more closely to infant's and young children's core understanding. Some examples of development in naive theories of physics, biology and psychology will be given below.

### **Children's "theories" of physics**

Naive physics refers to the understanding of the existence and movement of objects. Piaget's view of object permanence (Piaget, 1954); the understanding that physical objects are independent of self and continue to exist when not in view, was that this is acquired towards the middle of the sensori-motor period. However Piaget's methods have been criticised for their reliance on demanding that the child search for the disappearing object. When Baillargeon, Spelke and Wasserman (1985) observed infants watching a screen that swung and stopped when it hit a hidden box and another that continued to swing as though the hidden box was no longer there, they found that infants as young as 3-4 months looked significantly longer at the

impossible event as though they were puzzled about why the screen had not stopped and thus appeared to expect that the hidden box continued to exist.

Another experiment, relying on infants' gaze examined their observations of a ball which had fallen behind a screen and then the screen was removed to reveal the ball at rest on the floor. A shelf was then placed behind the screen and above the floor. In the possible event, when the ball was dropped and the screen removed, it was sitting on the shelf. In the impossible event it had somehow moved through the shelf and was on the floor. Once again 4 month olds looked longer at the impossible event (Spelke, 1991) illustrating that they also have some understanding of the spatial movements of a hidden object.

Older pre-schoolers show expanding knowledge about the characteristics of objects. For example they know about the insides of familiar objects. When looking at triads of objects such as an almond, a very similar-looking rock and a dissimilar-looking peanut, and asked which two items looked most alike and which had the same kinds of insides, three year olds were able to correctly solve both these problems (Gelman and Wellman, 1991).

In relation to causality amongst objects, Goswami and Brown (1989) examined 3-6 year olds' abilities to deal with analogical reasoning. Piagetian theory suggests that this type of reasoning (if  $a:b$  then  $c:d$ ) is difficult for children before the age of formal operations. However when children were offered analogies based on relations of physical causality such as melting and cutting, for example *chocolate bar:melted chocolate* then *snowman:melted snowman*, even 3 year olds were correct.

Wellman and Gelman (1992) argue that infants' early understanding of, and beliefs about, physical objects (including their insides), their movement and their physical causality suggests an early theory of physics, central to a later understanding of physics more generally.

### **Children's "theories" of biology**

In relation to children's everyday notion of biology, Piaget argued that young children are unable to distinguish between animate and inanimate objects, attributing animate properties to inanimate objects (Piaget, 1930). Later research has identified many ways in which pre-school children have a rich biological understanding, particularly through using more sophisticated methods than the previously-used open-ended interview (Inagaki and Hatano, 1999). Initially it was thought that children's biological theory develops from their psychological theory (Carey, 1985), though biology is now recognised as a distinct domain which may (Inagaki, 1997), or may not (Keil, 1994), be influenced by psychological understanding. Due to this question of whether or not biology exists as a separate domain, there has been considerable research into this area recently.

Gelman and Spelke (1981) have identified a range of ways in which children as young as 3 can distinguish between animate and inanimate objects, including animate objects' capacity to grow, have movement and experience emotions. Pre-schoolers can differentiate animals and plants from inanimate objects in terms of their capacity for growth and death (Inagaki and Hatano, 1993) and their need for food and water to

survive (Inagaki and Hatano, 1996). Children are clearly not just associating objects which look similar. For example, Carey (1985) illustrated how children can report that a mechanical monkey is similar to a person but unlikely to have properties associated with people (including sleeping, eating and having babies). Massey and Gelman (1988) found that pre-schoolers can use quite subtle cues, grouping highly realistic statues of animals with other inanimate objects and highly atypical animals, e.g. porcupines, with other animals.

Children's clear ability to distinguish between mind and body has been illustrated by Inagaki and Hatano (1993). They asked 4 and 5 year olds whether hereditary, physical and mental characteristics were modifiable, and if so, how. The majority of children recognised that hereditary characteristics (e.g. eye colour) are not modifiable, many knew that it is possible to modify physical characteristics (e.g. running faster), and about half knew that mental characteristics can be modifiable by will or mental effort (e.g. forgetfulness). The children recognised that physical practise could not modify mental characteristics and effort or determination had more effect on mental than physical characteristics. The children also identified that certain bodily activities (e.g. heartbeat) function independently from a person's mental intention.

A further interesting examination of young children's developing biological theory comes from the work of Keil, Levin, Richman, and Gutheil (1999) into children's changing explanations of disease. Children between the ages of 3 and 10 and a group of college students were given scenarios where characters with either physical (biological) diseases (e.g. yellow skin) or mental diseases (e.g. thinking that Big Bird is following and talking to them) had physical and/or social contact with another

character. Participants were asked, with slightly differing methodologies, whether the contact would be contagious or not. A characteristic U-shaped curve was revealed in each study. Children aged 3 - 4 responded at an above-chance level, correctly linking the transmission of physical disease with physical contact and mental disease with social contact; with age there was a corresponding increase in the frequency of correct associations between physical disease and physical contact; whereas the frequency of correct associations between mental disease and social contact dropped from ages 3 to 8, rose slightly at ages 9 to 10, and then rose significantly for adults. As children became older and began to refer to “germs” in their explanations for the transmission of physical illnesses, so they overgeneralised this mechanism to explain transmission of mental illnesses too. On the other hand, 3-4 year olds had not yet heard of germs. Keil et al. suggest that the youngest children’s responses were based on a vague and abstract theory that mental and physical illnesses are different and associated with different contexts. On the other hand, the older children had moved to a more concrete theory of germ contagion, knew that the method of germ contagion was limited to physical contact, but overgeneralised the effects which germs could have, from physical to mental disorders. This research suggests that in developing a theory of biology, rather than moving from concrete to abstract causal understanding, children may begin with some abstract understanding of causal patterns without any particular (concrete) mechanisms in mind. Through accumulated knowledge and experience, children and adults learn about these causal mechanisms and can fill in the gaps in their understanding.

The research quoted so far into children’s theories has tended to concentrate on domain-specific age-related stages. An interesting perspective on this discussion is

Springer's (1999) view that it is experience and not age that determines when a child develops a theory of biology. Examining children's understanding of reproduction, he compared children who were described as "informed" (children who know that babies grow inside their mothers prior to birth) and "uninformed" (those who do not yet have this knowledge). When 4 - 7 year olds were shown a picture of a woman and two children (one of whom was more physically similar to the woman but described as coming from another family, and the other who was less similar but described as belonging to the woman), the informed children were more likely to recognise that the real child shared more stable properties (e.g. the same coloured bones) with its mother and no transitory properties (e.g. superficial injuries) while the other child was likely to share neither of these. He subsequently offered similarly-aged (informed) children stories about children who either looked similar to and lived with non-biological parents or children who were born to but did not live with their parents. When asked who was the real baby to the family, even 4 - 5 year olds defined parent-offspring relations in terms of where babies initially grow rather than where they subsequently live and who they look like. Further studies then compared informed children who lived with their biological parents with informed children who knew that they had been adopted. Once again they were asked whether social or biological features defined parent-offspring relations. Children living with their biological parents were more likely to define kinship in biological terms. However, adopted children were more likely to be consistent with their answers, consistently defining kinship as either a biological or social process. While Springer concluded that adopted children are more likely to express a social definition of kinship, another explanation may have been that adopted children tended to "downplay" the importance of biological kinship. Of more interest was that the social experience of adoption resulted in a more



consistent understanding of kin relations than that gained by children who had not undergone this experience.

### **Children's "theories" of psychology**

Of particular interest for this thesis is how well prepared infants and young children are for dealing with the social and mental aspects of their world. Piaget believed that babies treat social objects in the same way as other objects and that young children are ignorant of the internal states of the mind, explaining people's actions by external cues and indicators until about the age of 6 or 7 (Piaget, 1929). However we now know that babies are well-prepared to deal with the social and psychological aspects of their world from birth. They prefer faces to other configurations (Sherrod, 1981), can imitate facial movements (Meltzoff and Moore, 1994) and prefer to attend to human speech, and especially their own mother's voice, over other sounds (DeCasper and Fifer, 1980). Later they show an understanding of others' perception or attention by pointing and showing towards the end of their first year (Butterworth, 1991), pointing and checking on the other's gaze in the second year (Masur, 1983) and stopping pointing once the other orients or comments on the object (Butterworth, 1991). Babies are also able to "read" their mothers' expressions and display what has been referred to as *social referencing*. Tomasello (1995) identified how 1 year olds watched their mothers show disgust or delight towards a particular toy and then later avoided the toy which was associated with disgust and approached and played with the toy associated with delight.

Numerous reports have also described how young children can distinguish between

the mental and real world. If told that one child has a dog and another is thinking about a dog, children as young as 3 can correctly judge which dog can be seen, touched and petted (Wellman and Estes, 1986). They can also understand that they can “see” their own mental images while others can not (Estes, Wellman and Wooley, 1989).

As young children develop an understanding of others as separate from themselves, and having separate mental states, so the question arises as to when young children begin to develop a “theory of mind”. Theory of mind refers to a framework for predicting and explaining what people think and do. It has been suggested that young children develop a theory of mind in the same way that they develop theories of physics, biology and psychology more generally (Wellman, 1990). One method of examining early understanding of mental states has been to look at the content of young children’s conversations. Brown and Dunn (1991) followed a group of young children and monitored their talk to their mothers at home. Examining references to internal states, at age 2 only four percent of such references were to other people, whereas by the age of 3 this had risen to 25 percent. By the age of 3 children are also not only able to talk about their beliefs about the world, but the ways in which these beliefs may be different from reality, i.e. false beliefs (Bartsch and Wellman, 1995).

False belief understanding has become accepted as the crucial marker of theory-of-mind. The traditional procedure for assessing understanding of false belief was introduced by Wimmer and Perner (1983) and is referred to as the “unexpected transfer” task. With a doll observing, an item is placed in one location, and then while the doll is away the item is removed to another location. The child is then asked

where the doll will look for the object when it returns. In general, 4 year olds do well on this task and say that the doll will look in the original location, while 3 year olds tend to incorrectly predict that the doll will look in the new location.

In order to guard against the possibility that the poor performance of 3 year olds might have been due to their inability to follow a complex story, Hogrefe, Wimmer and Perner (1986) devised the “unexpected contents” task. Children are shown a well-marked box, such as a Smarties box, and asked what they think is inside the box. When it is opened it is found to contain an unexpected object. Once closed again, they are asked what another person seeing the box for the first time would think was in it. As with the unexpected transfer task, the 3 year olds continue to perform poorly.

While initially the available research seemed to be confirming that there was some absolute threshold in false belief understanding between the ages of 3 and 4 years, a review by Hala and Carpendale (1997) of studies which have redesigned assessment procedures has suggested that poor results with 3 year olds may well have been more to do with 3 year olds’ general cognitive limitations, including issues related to linguistic confusion and task complexity, rather than lack of understanding of false belief.

One line of research has been to investigate whether potential linguistic confusion in the original assessment tasks may have obscured 3 year olds’ abilities to report false beliefs. Siegal and Beattie (1990) clarified the unexpected transfer task by asking their subjects where the doll would “look first”. Lewis and Osborne (1990) asked “what did you think was in the box before I took the top off?” Both procedures

resulted in the majority of 3 year olds responding correctly to the false belief questions.

Another proposal has been that younger subjects may have difficulty setting aside particularly salient aspects of the testing situation in order to report another person's false belief. Dealing with the salience of reality, and younger children's difficulties with putting aside their knowledge of where the hidden item *really* is, Fritz (1992) asked children to simply "pretend" that the object had been moved from one situation to another. Another procedure has been to increase the salience of mental representations. Mitchell and Lacohee (1991) highlighted children's original thoughts in the unexpected contents task by asking them to select a picture of what they thought was in the box and posting it in a postbox before the true contents were revealed. Children were then asked "when you posted your picture in the postbox what did you think was in here?" Once again these adaptations resulted in the majority of 3 year olds responding correctly to the false belief questions.

Finally there have been investigations of the impact of increasing children's involvement in the task. Freeman, Lewis and Doherty (1991) adapted the unexpected change task to a hide and seek game where the doll badly "needs to know" where the object is and so cheats by peeking. However the object is moved after the doll has cheated. Three year olds did best when they acted out the scenario themselves rather than watching the story unfold. Lewis (1994) similarly found that when children listened to an unexpected transfer task story and then retold the story themselves, more 3 year olds demonstrated understanding of false belief than if they simply listened to the story a second time. In both these designs it may have been that by actively working

through the steps of the false belief task, this helps the child to keep track of the other person's beliefs.

In passing, it is interesting to note how theory of mind research has also produced a new impetus for the study of children's understanding of traits. Whereas in early research, understanding of traits had generally been interpreted as "using traits to predict behaviour", children's understanding and use of traits are now seen as much more theory-bound explanations. From an early age children are able to explain how traits do not solely describe what people will do, but also their underlying motivations and emotions. So, for example, by the age of 5, a child recognises that being chosen for the lead part in a play may produce happiness in an outgoing child, but dread in a shy child (Yuill, 1997).

### **The contribution of language**

An important investigation of the separate development of the domain-specific structures of physics, biology and psychology and the contribution of language has been carried out by Peterson and Siegal (1997). They compared the development of these domains among normally-developing pre-schoolers, autistic children, deaf children with signing parents and deaf children with non-signing parents. While all the children showed fairly similar and expected development of the domains of physics (assessed with a false photo task), and biology (growth of seeds and animals), the autistic children and deaf children of non-signing parents did significantly poorer in the psychology domain (false belief task). The deaf children from a signing background performed significantly better than their deaf peers with non-signing

parents. It was suggested that the poor performance of the autistic children and deaf children from a non-signing background was due to their early deprivation of conversational experiences and lack of exposure to talk of other people's mental states.

The research described above supports the view that infants are prepared at birth to understand at least three separate aspects of their worlds - the physical, biological and psychological. These three domains do not develop together, but may well be generated and expanded through young children's social experiences. Children's understanding of learning disability is likely to fall within the domain of their psychological theory of the world. As children develop the ability to understand others' mental states, so they will be able to make predictions about what another can and can not do, and explain why this is so. If one has more experience of interacting with another person who cannot do a number of things, and particularly if there are opportunities for conversation about this, so these experiences may increase the capacity to make predictions about lack of ability. What follows is an investigation of this premise.

## **CHAPTER 3**

### **CHILDREN'S UNDERSTANDING OF ABILITY AND DISABILITY**

#### **Introduction**

Once young children can recognise standards and become aware of their own and others' abilities, or inabilities, to meet these standards, so they become able to evaluate both their own and others' performances. Initially young children may observe that they or others can or cannot perform certain activities, but then at some stage they will develop an understanding of the implications of these performances in terms of current (and future) abilities, including intellectual abilities. Certain performances will indicate that they or others have more ability than others. Certain performances will indicate comparative disabilities. By noting what young children say and do it is possible to understand how they develop a theory of ability, and of disability. This chapter will examine how children develop an understanding of intellectual ability before reporting on the limited literature on children's recognition and understanding of differences and disabilities.

#### **Adults' understanding of intelligence**

In order to investigate how children come to understand disability, or lack of ability, it is necessary to be clear about what is meant by ability, or intelligence. The major study in the Western world of adults' conception of the components of intelligence was carried out by Sternberg, Conway, Ketron and Bernstein (1981). They questioned members of the public, and later experts (psychologists specialising in the study of intelligence) about how they would define intelligence and found that adults hold and use organised theories of intelligence for judging both their own and others'

intellectual ability. The most important characteristics are verbal ability (or knowledge), problem solving ability (or capacity), motivation (or effort) and social competence (the latter in the view of the general public rather than experts). A review of studies with children concluded that older children hold similar theories of intelligence to adults, and believe that knowledge (or experience), reasoning ability (or capacity), and motivation (or effort) are all important (Cain and Dweck, 1989).

(Very little research has also been conducted into adults' understanding of learning disability. Appendix A describes a study completed with adults, which provides a context in which to place children's understanding.)

### **Children's understanding of intelligence**

Cain and Dweck (1989) proposed a framework for understanding children's development of a conception of intelligence. They based this on their view that children's understanding of intelligence is dependent on the acquisition of knowledge gained once they enter the academic environment, rather than on predetermined Piagetian stages. The framework included three overall steps: the first an initial analysis of what is needed to conceptualise intelligence: secondly, children develop a global model by combining the concepts of ability and effort: and finally, children build a *mature* model of intelligence which includes knowledge, capacity and effort. As the interest here is in children's earliest understanding of ability, the research reviewed will concentrate on steps one and two.



### ***Children's understanding of intelligence - step one***

During the first step children need to be able to define success and failure outcomes; recognise that outcomes are dependent upon their own behaviour; and realise that people differ in their rates of success and failure.

As described in the previous chapter, children are recognising what does and does not constitute successful completion of a task by the second year old life (Kagan, 1981). In terms of recognising that outcomes are contingent upon one's own behaviour, Cain and Dweck's (1989) review has identified how 4 year olds (Cain, 1987) and even babies (Gunnar, 1980; Watson, 1977) respond differently, and quite appropriately, to contingent and non-contingent stimulation. Of more interest to this study is young children's ability to recognise that people differ in their rates of success and failure. In order to note differences, children need to engage in the process of making social comparisons.

Social comparison has traditionally referred to the process of comparing oneself with others for the purposes of self-evaluation (Festinger, 1954). Clearly a child has to use social comparison methods in the process of comparing the abilities of him or herself with others. Festinger noted the strong tendency for adults to evaluate their opinions and abilities, and when unsure, to look to others and make comparisons. With a desire for self-evaluation, adults look for similar rather than dissimilar others, and tend to orient themselves to a point that is slightly better than their previous performance. However, Veroff (1969) has suggested that young children do not automatically function in the same way as adults. He has described how very young children move from the stage of "autonomy" (internal, self-regulated norms) to

“social comparison” (social norms) to “integration” (use of both norms). A motive to compare socially only develops after considerable reinforcement from others, often siblings and parents, and particularly after entering school.

Numerous studies have been designed by Ruble and her colleagues which involve children at different age levels working on tasks and receiving information on their own and their peers’ performance, and then having to evaluate themselves. In each case, 5 and 6 year olds’ ratings of their own ability or task difficulty were based exclusively on whether or not they had completed the task and they did not use social comparison feedback until at least 7 years of age (Boggiano and Ruble, 1979; Ruble, Feldman and Boggiano, 1976; Ruble, Boggiano, Feldman and Loeb, 1980).

A later review of this research by Ruble (1983) concluded that while very young children have the cognitive capacities and motivation to make comparisons, they have different ways of processing the information. So, for example, they are more likely to make concrete rather than abstract judgements. Pre-schoolers are also less likely to view behaviour as stable and traits as constant. In their view, the world, and they, are constantly changing and consequently they are less likely to be interested in lasting comparisons with others. Once children do come to perceive ability as stable, so they may be more sensitive to the consequences of social comparison (Pomerantz, Ruble, Frey and Greulich, 1995). Pomerantz et al. found that 5 year olds engaged in very conspicuous forms of social comparison whereas two years later their comparisons were much more subtle, suggesting a clearer understanding of the social implications and consequences of such statements. It has also been argued that before the age of 7, children may not be using negative feedback gained from social comparison because

they think that this indicates that he or she is a “bad” child (Ruble, Eisenberg and Higgins, 1994).

Ruble’s review (1983) suggests that the term “social comparison” needs to be expanded to include not only comparison between self and others in order to determine how good one is, but also in order to determine social norms. So initially, social comparisons may be directed at uncovering similarities, so that a child can attempt to judge what is an appropriate way to perform. Only later is a child concerned with differences. Some support for this view comes from Gottman and Parkhurst (1980) who suggest that 3-5 year olds are particularly concerned with “solidarity comparisons” (e.g. “I’m doing mine green” - “me too”) whereas among 6 year olds there is a greater concern with individualism or contrast (e.g. “I’m doing mine green” - “I’m doing mine blue”).

### ***Children’s understanding of intelligence - step two***

The second step in Cain and Dweck’s proposed framework involves a basic model whereby young children understand that successful outcomes depend on some combination of their ability and their effort. Early work in this area was carried out by Nicholls (1978). Collapsing the characteristics of knowledge and capacity as ability, he examined the ways in which young children combined ability and effort in their explanations of outcomes. An audience of 5-13 year olds were shown films featuring pairs of children working on maths problems, one child working intermittently, and the other working hard throughout the film. In two films both children got the same final score and in a third film the child who worked intermittently achieved the higher score. He asked the audience to explain why the

children had performed as they did and came up with four levels of reasoning involving the concepts of ability and effort. At level 1: effort, ability and outcome are not distinguished from each other as separate dimensions which can be related. At level 2: effort and outcome are viewed as cause and effect with equal effort expected to lead to equal outcome. Ability is not distinguished as a separate dimension and so can not influence effort or outcome. At level 3: effort is not the only cause of outcome and there is intermittent use of ability. There is some understanding of ability as capacity, a dimension which can vary. Children recognise that high ability can compensate for lack of effort and low ability limits the effects of effort, though these implications are not used systematically. At level 4: ability is perceived as capacity, and as an interdependent cause of outcome. There is consistent recognition that higher ability means that less effort is needed to achieve a given outcome and lower ability means more effort is required. Nicholls found a predominance of level 1 reasoning among 5-6 year olds, with a gradual move to a predominance of level 4 reasoning among 12 to 13 year olds. He concluded that 5-6 year olds cannot distinguish between effort, ability and outcome, so for example, people who try harder will be considered by these young children to be cleverer, even if their final outcome is poor. He suggested that children cannot reach a mature definition of intelligence until the age of 11 or 12.

Mature individuals recognise that ability is not an individualised concept, but that a person's level of ability is defined with reference to the performance of others. Once children have developed the capacity to make social comparisons, they will be able to make comparisons between their own and others' abilities. Young children tend not to look to the performances of others when judging their own ability, but instead take

a more subjective perspective. They look to their own previous performances and if they achieve a subsequent higher performance this is interpreted as meaning a higher ability. This has been referred to as having a “self-referenced” rather than “norm-referenced” judgement of ability. (Nicholls and Miller, 1984). Once children recognise that tasks are judged as more difficult if fewer members of a reference group can do them and that higher ability is inferred when individuals succeed on tasks that few others can do, they can make norm-referenced judgements of ability. Nicholls and Miller (1983) have examined children’s ability to make norm-referenced judgements and attainment of what is called the normative concept of ability (sometimes referred to as the normative concept of difficulty and ability): the ability to recognise that more ability is required to succeed on an unknown task if few others have been successful on that same task. They compared the performance of 6 year old children, cross-sectionally and longitudinally on normative difficulty tasks and objective difficulty tasks. Normative difficulty was assessed by telling children how many others had completed particular jigsaws and then asking them which jigsaw they had to be really smart to do. Objective difficulty was assessed by cutting the same picture into different numbers of pieces and again asking which one they had to be really smart to do. The children’s responses could be distinguished at three levels: conceptions of normative difficulty, objective difficulty and egocentric difficulty. Normative difficulty involves the differentiation of the concepts of ability and difficulty and recognition that the puzzle which fewest children can do requires most ability. Objective difficulty involves children understanding a continuum of difficulty based on task complexity but without utilising performance norms and so the puzzle with most pieces is seen as requiring most ability. Egocentric conception of difficulty refers to children who judge the complexity of tasks based upon their own subjective

view of whether or not they believe they can achieve them. Most 6-7 year olds had already mastered the objective concept of ability while the normative concept of ability was generally not understood until the age of 7 years. Nicholls and Miller's conclusion was that young children cannot make norm-referenced judgements of ability until 7 years.

Nicholls and Miller (1983) proposed an association between what they had described as level 2 reasoning (where effort and outcome are viewed as cause and effect) and the normative concept of ability, as their studies indicated that both develop at around the age of 7. They suggested that these are linked to Piaget's emerging concrete operations. While children at this age recognise that being clever means being more able than your peers, they believe that it is effort which leads to outcome. Ability as an independent dimension, which can limit or increase the effectiveness of effort, is not recognised. In the minds of these young children, the harder you try, the cleverer you are. Therefore, argue Nicholls and Miller, the concept of ability at this stage is quite different from that of an adult.

Nicholls (1978) acknowledged that since effort cues were more salient in the films in his study than ability cues, this may have influenced subjects and encouraged them to notice effort before ability. Certainly subsequent studies have identified that young children may well have a concept of ability, though may have difficulty demonstrating this knowledge when complex judgements are required (Cain and Dweck, 1989). Yussen and Kane (1983) described how they asked children to imagine someone who was either "smart" or "not smart" and then to rate how this person might perform on various concrete behaviours: for example "suppose Alice is

taking a test, how many of the questions will she get right?” By asking about specific and concrete behaviours which had relevance and interest for the young children, they found that 6 year olds were as capable as 11 and 12 year olds in identifying the behaviours associated with “smartness”. Yussen and Kane argued that by using an appropriate methodology they avoided the possibility of underestimating the children’s abilities.

Very little research has been carried out on the concept of ability as displayed by children of 5 years and under. What there is, often unpublished and difficult to obtain, sometimes only refers to young children’s spontaneous comments regarding ability. Stipek and Daniels (1987) found that 5 year olds could predict how the “smartest” and “not the smartest” children in their class would perform on familiar and novel tasks. Similarly, Crocker and Cheeseman (1988) asked 5-7 year old school children to rank themselves and their peers in terms of school work, and their ratings were compared with teacher rankings. A high degree of agreement was found between self, peer and teacher rankings, and while only the youngest children used non-academic measures, these had largely disappeared by the time the children were 6 years old. Hebert and Dweck (1988) discovered that while some 4 and 5 year olds attributed their poor performance on a difficult puzzle to task difficulty, others stated: “I’m just not good at puzzles” and were less likely to show persistence. They presumed that these comments indicated that some of these children had the capacity to comment on their own ability. Similarly, Cain and Dweck (1988) described how almost half of 5 year olds, when giving an explanation for a failure that occurred in a story gave *can* - related factors in which ability rather than task difficulty was seen as important ( e.g. “He doesn’t know”; “He has a good brain”).

A later study by Butler and Ruzany (1993) has questioned Nicholls' proposal that normative concept of ability only occurs at a particular age and suggested that different environments may well affect the rate of acquisition. In their investigation, children from urban schools where competition is encouraged were compared with children from kibbutz schools where there is an explicit commitment to co-operation, and competition is discouraged. They found that 5 - 7 year old children from kibbutz schools tended to acquire normative concept of ability earlier than urban children implying that an environmental emphasis on competition does not necessarily help children understand that ability can be inferred from rates of peers' success. Instead, the authors suggested, that children in a co-operative situation where they continually observe same-age peers, came to an earlier appreciation of the implications of normative outcomes for self-evaluation.

### **Young children's recognition, understanding and social acceptance of others with physical and mental differences**

Some researchers have investigated children's awareness of physical disabilities, some have looked only at learning disabilities, and some have looked at both. While this review will attempt to separate the findings regarding children's awareness of both types of differences, much of this research is particularly interesting because of the comparisons which are made. A variety of methods have been used with young children to measure their understanding and acceptance of children with disabilities. Initial research involved interview methods to clarify children's general knowledge. More recently there have been observations of non-disabled and disabled children's interactions in natural environments, sociometric procedures which ask children who



their friends are or who they play with, and further interviews to identify understanding of disabilities. There have also been studies to examine whether there are any relationships between understanding of disability and social acceptance of peers with disabilities. These different types of methods and their findings will be reviewed in turn.

An area of research that is relevant here and will be mentioned briefly is the field of young children's theory of race. Early research using interview techniques and drawings found that young children acquire racial categories with remarkable ease. It was assumed that this is done on the basis of surface perceptual cues only; that children sort people purely by colour without any deeper understanding (Aboud, 1988; Katz, 1982). Later experiments by Hirschfeld (1995) have shown that this research underestimated young children's understanding and even 4 and 5 year olds have some biological understanding of race, recognising that skin colour is fixed at birth, is derived from family background, and will not change throughout life.

One of the earliest pieces of research in the area of young children's recognition of disability was carried out by Conant and Budoff (1983) using interview techniques and open-ended questions regarding knowledge of five disabilities (blindness, deafness, orthopaedic disabilities, mental retardation (learning disabilities) and "psychological disturbance". They found that children as young as 4 were aware of and could recognise others with sensory impairments and physical disabilities. However, learning disabilities and "psychological disturbance" were the most difficult for both children (and a small group of adults) to understand.

A similar study by Hazzard (1983) found that 8 - 11 year olds' knowledge of a range of disabilities (a blind person, a deaf person, a person in a wheelchair or on crutches, and a "retarded" person) increased with age and was unrelated to contact with people with disabilities. Children who had had previous contact with others with disabilities, and girls, expressed a greater willingness to interact with disabled peers.

Diamond (1993) also used interview techniques and similarly found that 4 year olds in integrated pre-school programs could easily identify peers with significant physical or cognitive disabilities. When these 4 year olds were asked to indicate who in their class was not able to walk, talk or behave in the same way as the other children, they identified all the children with obvious physical and learning disabilities. Children with mild-moderate speech and language delays were not identified. Explanations for their peers' disabilities fell into three categories: references to immaturity ("she's a baby"), adaptive equipment to account for the behavioural differences ("he's got a walker") and accident ("he can't talk because he got hit in the mouth"). It was suggested that these explanations reflected young children's attempts to assimilate the new concept of disability into existing cognitive structures (Diamond, 1993).

With moves towards integration of disabled and non-disabled children, it became possible to observe children's social interactions and communications within the integrated setting. Guralnick and Groom (1987) examined the social interactions of pre-school children in specially created mainstream playgroups. The groups were composed of three normally-developing 3 year olds, three normally developing 4 year olds, and two mildly developmentally delayed 4 year olds. The delayed children were developmentally matched with the non-disabled 3 year olds. Both groups of non-

disabled children displayed a negative preference (i.e. lower than expected interaction level) for the developmentally delayed children. The developmentally delayed children were interacted with by others, proportionately less frequently than the developmentally matched 3 year olds, suggesting that preference is related to developmental status (i.e. existence of a developmental delay) rather than developmental level. Further work on communication found that 3 and 4 year old non-disabled children adjusted their speech when talking to developmentally delayed 4 year olds, but did not do so when talking to developmentally matched 3 year olds (Guralnick and Paul-Brown, 1989). It appeared from these studies that developmentally delayed children show peer-related social skills deficits beyond what would be expected of their developmental ages, and these are easily picked up by their peers.

Rice (1993) found similar problems when observing the social interactions of young children with language impairments. The title of her chapter “Don’t talk to him: he’s weird”, was a comment made by a 4 year old about a peer with delayed language. She found that even 3 year olds were sensitive to language delay. Normally developing children were preferred partners for all interactions, children with limited communication skills were ignored more often than their peers, and were in turn less responsive to initiations directed to them by their peers. She described a negative spiral whereby language-delayed children lack the flexibility in using language or intelligibility in using speech, which deny them easy access into social interactions. They are more likely to be excluded, and then lack the compensatory abilities to be re-included.

Sociometric procedures have used a variety of measures, possibly reflecting the difficulties in identifying suitable methods for use with young children (Favazza and Odom, 1996). A review of early research using sociometric measures identified that children (and adults) with learning disabilities were consistently found to be held in low esteem by their normally-developing peers, often rejected as potential friends, playmates and work partners (Forman, 1987).

Sigelman, Miller and Whitworth (1986) found that children from the age of 4 consistently expressed preferences for same-sex, same-race, non-disabled children as playmates. They suggested that if children are integrated with children with learning disabilities at an early age, this could result in more positive attitudes and preferences towards children with disabilities, because they would then be more likely to be incorporated into non-disabled children's schema of normality, based on who is "like me" and "not like me" (Lewis and Brooks, 1974).

Diamond, Le Furgy and Blass (1993) asked non-disabled 3 and 4 year olds in integrated pre-school classes to nominate their three "best friends". Three year olds used neither gender nor disability to identify the peers with whom they liked to play whereas 4 year olds were significantly more likely to choose same-sex peers without disabilities suggesting that these 4 year olds were already using a "schema of normality".

However, more rigorous sociometric investigation has indicated that activity is an important variable when indicating preferences. While pre-schoolers chose to play with a physically normal child rather than a child in a wheelchair for activities based

in the playground, their preferences were not so strong for activities with lower activity levels such as eating lunch, reading or watching television together (Nabors and Keyes, 1997).

Although early integration has not resulted in peers with disabilities being as favoured playmates as children without disabilities, it has been shown to have had an effect when comparisons have been made between children who have and have not experienced integrated settings. Comparing children from both settings, more positive attitudes have been found amongst integrated children at both nursery-age (Favazza and Odom, 1996) and young school age (Gash and Coffey, 1995). Young school-age children have also been found to develop more positive attitudes towards peers with learning disabilities throughout a structured period of co-operative learning (Maras and Brown, 1996; Lewis, 1988).

Although these studies enlighten us about the sensitivities of young pre-schoolers to differences between themselves and their disabled peers, and their preferences for others with disabilities, they have little to say about young children's understanding of disabilities, and especially learning disabilities. The remainder of this review will concentrate on this area and also the relationship between understanding and social acceptance of peers with disabilities.

The effect of different types of contact with disability upon understanding of disability has been explored by Maras and Brown (1992). They interviewed children who were aged between 5 and 11 years and who had had what they described as "categorised" and "decategorised" contact with children with physical disabilities and

learning disabilities. “Categorised” contact was defined as integration of disabled children where their difference was acknowledged and even highlighted. In “decategorised” contact the disabled children were integrated without any mention of their differences, and all references to them as a separate group were dropped.

When asked to rate hypothetical disabled children on their abilities to run, to hear, and how much they would be liked, there were interesting effects of “categorised” and “decategorised” contact. Children who had experienced either “categorised” or “decategorised” contact with children with physical disabilities were subsequently more aware of the physical difficulties which a hypothetical physically handicapped child would have with running than children who had experienced no contact with disability. In addition, children who had experienced “categorised” contact with children with physical disabilities were also more aware of the difficulties in hearing experienced by hearing impaired children. These findings suggested that when young children are made aware of differences in others which are easily observable i.e. physical differences, this seems to help them to tune in to a range of differences between them and others.

Further interesting results were found in relation to learning disabilities. Children who had experienced either “categorised” or “decategorised” contact with children with learning disabilities, were subsequently more aware of the physical difficulties which a hypothetical physically handicapped child would have with running than children who had experienced no contact with disability. However, when children had experienced “categorised” contact with children with learning disabilities, they were actually poorer than children who had had no contact, at distinguishing

children's ability to hear. They judged that children with no disabilities would hear best, but could not distinguish between the hearing abilities of others who were physically disabled, learning disabled or hearing impaired. The authors suggested that when children are told that a group of others are different, but the "difference" is not clearly identifiable (as with physical disabilities), they collapse all the categories into one (i.e. disabled) and attribute the same degree of disability to all the children in the group.

Examination of the effects of different forms of contact with disability upon attitudes towards disability has illustrated still more examples of generalisation of stereotypical attitudes from one type of disability to another (Maras and Brown, 2000). While reporting on the results regarding contact with children with hearing impairment, similar results were found for contact with children with learning disabilities. These were that children with disabilities were less liked, were thought to hear less well, were considered to perform less well with homework and were rated as poorer at thinking than non-disabled children. These differences were more exaggerated in the schools where "categorised" contact occurred than where "decategorised" contact was practised.

Further work in this country has been undertaken by Lewis (1988, 1993, 1995). She has interviewed 7 and 11 year olds who had weekly categorised contact over one academic year with children with severe learning disabilities. She found that the mainstream 7 year olds described their classmates in terms of their physical characteristics, and cognitive characteristics were rarely mentioned; that they confused learning disabilities with sensory disabilities; and initially they tended to

view the learning disability as an illness from which the afflicted child would recover. They later saw them as “normal but young” and likely to grow out of their difficulties. Study of the mainstream 11 year olds after a year of contact indicated that these children recognised the cognitive limitations of the integrated group and realised that these young people had a permanent condition. However when prompted to explain the behaviours of their learning disabled classmates, even the 11 year olds resorted to thinking like 7 year olds and confused learning and sensory disabilities.

In reference to the younger children, Lewis concluded that because they tend to focus on physical indicators in, for example, their emphasis on physical characteristics when describing others (Livesley and Bromley, 1973), children under the age of 7 are able to differentiate children with visible disabilities from themselves, but will not be able to recognise less visible disabilities such as learning disabilities.

The major researcher in the field of understanding of disability in recent years has been Karen Diamond. Diamond and Hestenes (1994) found that daily experience with a hearing-impaired peer not only resulted in 3 and 4 year old children being able to identify peers with hearing-impairment, but also influenced their understanding of hearing and hearing loss. These children had a greater understanding (than peers without similar experiences) of the relevance of sign language and the relationship between the ability to hear and the ability to speak. The authors concluded that hearing impairment may not have been such an abstract concept for these young children as one might at first assume. The physical indicators, such as sign language and hearing apparatus were concrete and observable features, which the non-disabled



children were able to concentrate on and which would have helped them identify differences in their peers.

Diamond and Hestenes (1996) investigated 3-6 year olds' awareness and understanding of various disabilities. The children all attended inclusive pre-school programs. They were asked to assess five photographs showing children with a physical disability, visual disability, hearing disability, Down's Syndrome and a non-disabled child. Three measures were used: salience of physical disability was assessed by a sorting task; children were asked open-ended questions about whether they would be friendly with children with these disabilities and about the causes of the disabilities; and they were asked to assess children with disabilities on an adaptation of Harter and Pike's perceived competence and social acceptance scale (1984). Most children were aware of physical disability, half were aware of sensory disabilities, but none expressed an awareness of Down's Syndrome. While most were aware of the motor limitations associated with a physical disability, they were confused about the effects of sensory disabilities and Down's Syndrome upon performance. The majority of children indicated that they would "be friends" with the children in the different photographs.

The study of young children's understanding of physical and sensory disabilities has been investigated further by Diamond, Hestenes, Carpenter and Innes (1997). They investigated the relationship between young children's understanding of disabilities and their social acceptance ratings of children with and without disabilities, by comparing children who were and were not attending inclusive education programmes. Dolls were used to represent children with physical, visual and hearing

disabilities as well as a non-disabled doll. Measures of the dolls' perceived physical, hearing, vision competence and social acceptance ratings were derived using an adaptation of the measure described by Harter and Pike (1984). Children were also interviewed about their knowledge of the immediate and long term consequences of the disabilities. In this study, basic knowledge about disabilities was not related to experiences in inclusive education. The difference between this finding and the outcome from the results of the study by Diamond and Hestenes (1994) may have been due to different methodologies as the children in this study were presented with a more complete description of the disabilities (aiding the children who did not have experience of inclusive education) and asked more basic questions. Children in the inclusive setting were more likely to have more knowledge of the long-term consequences of physical and sensory disabilities and give disabled dolls higher social acceptance ratings. Overall, children's general inclination to be accepting towards disabled peers was related to acceptance of normally developing peers suggesting that children's, and families', individual characteristics may influence children's behaviour towards, and acceptance of, their peers.

Further investigation of the impact of individual and parental characteristics suggested that within groups of children attending inclusive early childhood programmes, parents' beliefs and children's attitudes were related to the frequency of children's actual contacts with peers with physical and learning disabilities (Okagaki, Diamond, Kontos and Hestenes, 1998).

While the findings of Diamond and her colleagues are clearly of immense relevance to the research to be investigated here, there are some difficulties in translating the

findings from one side of the Atlantic to the other. One major difficulty is that much of the work with pre-schoolers includes 6 year olds who in this country would have already received two years of formal education. There are also different interpretations of inclusive practice in this country and the United States (Florian and Pullin, 2000). Finally, while some of her research has concentrated on children attending community pre-school programs, much has been conducted in University-based centres. More work needs to be conducted in community settings with children who come from a much wider range of backgrounds.

While a variety of methods have been used in these studies, overall they suggest that by comparing children who have and have not experienced integration with children with learning disabilities, those who are integrated are more likely to rate children with learning disabilities more positively, and depending on the intensity of contact, may develop a greater understanding of the consequences of a learning disability. Individual variability in children's acceptance of children with learning disabilities may well be related to parental beliefs about learning disability. Since a number of factors are at play here, it opens up the possibility of asking what the effect would be upon children who have very intensive involvement with a child with a learning disability, i.e. siblings, where parents may have clear understanding of the implications of the disability.

## **CHAPTER 4**

### **STUDY I - LONGITUDINAL STUDY WITH THE SIBLINGS OF CHILDREN WITH LEARNING DISABILITIES**

#### **Introduction**

Previous research into young children's understanding of learning disability (Hames, 1997; 1998) followed a group of children who had older brothers and sisters with learning disabilities, and over 5 years gathered information from their parents on the younger siblings' awareness and understanding of the older children's disabilities. Questions concentrated on the disabled and non-disabled children's development, on whether the non-disabled children had overtaken the disabled children, and any comments and behaviours which suggested to the parents that the non-disabled siblings were aware of differences between them and their older brothers and sisters. The outcomes of this research suggested that these young children had developed an earlier understanding of the abstract concept of learning disability than other research into children's understanding of intelligence would suggest. These hypotheses were based on parents' general descriptions and recollections and not on any systematic data collection.

While the non-disabled siblings had often been around at the time that information had been collected from their parents, they usually were not asked to answer any questions. However, they had got to know the interviewer, had played with her, and knew that she was interested in them and their disabled brothers and sisters. Since information had not been collected directly from them, the aim of this follow-up study

was to collect information directly and more systematically from young siblings about their perceptions of their disabled brothers and sisters.

The model used here is based on research by Bibace and Walsh (1980). They have proposed a cognitive developmental model for understanding children's conceptions of physical illnesses and Glasberg (2000) has used the same model for examining siblings' understanding of autism spectrum disorders. This model is based on Piaget's (1929) developmental stages. While not proposing a Piagetian model for understanding learning disability, Piaget's stages will be used as a framework for classifying sibling's responses in this study. As has been suggested elsewhere (earlier in chapter 2 and also by Bjorklund, 1997), while much of Piaget's work has been heavily criticised, the data he collected remain important and useful in the development of alternative models and theories.

Bibace and Walsh's (1980) research, suggests that children in Piaget's pre-operational stage (typically 2-6 years) progress through three phases in their understanding of illness. First they display incomprehension. Secondly, phenomenism, which refers to the way in which children focus on specific and observable features when describing an illness. During the final pre-operational stage, contagion, children connect illness and cure, though cannot explain how this occurs, referring to proximity or "magic". If they concentrate on specific aspects of an illness, this has more relevance than in the phenomenism phase.

During the concrete operational stage (7-11 years) children begin to develop the ability to distinguish between their own and others' thoughts and experiences of

illness. Two separate phases have been suggested in this stage. In the first, contamination, children begin to think about and associate more than one symptom. They make suggestions for associations between illness and cure. A “bad” person, object or action causes illness through physical contact or the child engaging in the harmful action and thus becoming contaminated. However reasoning is still dependent upon events that they have experienced or observed. In the next phase, internalisation, children focus on contamination from external causes linked to the internal effects of illness within the body. However, their explanations for what is going on inside the body are concrete and vague.

Finally during the formal operational stage children are no longer dependent upon their own experiences. They can reason using factual and hypothetical information and can identify gaps in their knowledge. They first become aware of the physiological components of an illness and later the psychological/emotional.

Using the model described above, this study will examine younger siblings’ conceptions of learning disability and understanding of the implications of this condition. It was hypothesised that children’s understanding of learning disability and its implications would increase with age. In line with the findings from previous research (Hames, 1997; 1998), that siblings appeared to be displaying a higher-than-expected level of understanding of their brothers’ and sisters’ disabilities, it was also hypothesised that these siblings would evidence a higher level of understanding than would be predicted by Piaget’s developmental stages.

## **Method**

The ten families who had been involved in the previous longitudinal research (Hames 1997, 1998) were contacted and asked if the younger, non-disabled children could be interviewed as part of a longitudinal study. Interviews took place annually at home and part of the information gained during the first three years was used for this study.

### ***Participants***

Eight families agreed to be involved in this study. There were eleven younger siblings<sup>2</sup> (six girls and five boys) who, at the start of the study, ranged in age from 3-8 years. Eight siblings were interviewed on all three occasions. The 3 year old, one 5 year old and one 7 year old only took part in the second and third interviews. None of these children had special needs and all attended mainstream schooling. Seven of the disabled brothers and sisters were aged from 8-10 years at the start of the study and one was nearly 18. Three had profound physical and learning disabilities (all girls) and five had severe learning disabilities (four girls and one boy). All the children with severe learning disabilities had Down's Syndrome.

### ***Materials***

Two protocols were devised: one to investigate concepts of learning disability and the other, implications of learning disability. The label which was used to describe disability in the protocols was that which was used by the sibling and which had been identified earlier in the interview.

The concepts of disability protocol covered the following questions:

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<sup>2</sup> Once again, "siblings" refers to the younger, non-disabled children

- what is (*child's term for learning disability*)?
- how do children get (*child's term for learning disability*)?

The implications of learning disability protocol covered the following:

- how does (*child's term for learning disability*) make your brother's/sister's life different?
- when he/she grows up will (*child's term for learning disability*) make his/her life different?
- does having a brother/sister with (*child's term for learning disability*) make your life different?

Details on categorisation of responses are give in appendices B and C. Coding of both protocols followed that used by Glasberg (2000).

### ***Procedure***

The children were seen alone unless they asked to have their parents present. Interviews were audiotaped and transcribed. The initial part of the interview allowed children to relax and talk about themselves and their older brother or sister and covered the following areas:

- descriptions of themselves and their disabled brother or sister
- examples of what their brother or sister could and could not do
- reasons why they thought their brother or sister had difficulties with certain tasks



- things they liked about their brother or sister
- things they did not like

This introduction allowed the siblings to introduce the term which they used in describing their brother or sister's difficulties. Utilising the same procedure as Glasberg (2000) employed, protocol questions were asked using non-directive probes such as "tell me more" until the children either indicated that they knew no more or began repeating themselves.

### ***Coding***

Children's responses to the concepts of learning disability protocol were categorised as follows: incomprehension = 0, pre-operational, phenomenism = 1, contagion = 2; concrete operational, contamination = 3, internalisation = 4; formal operational = 5. Responses to the implications of learning disability protocol were categorised: incomprehension = 0, pre-operational = 1, concrete operational = 2, formal operational = 3. The "highest level" of explanation offered by each child was used.

All protocols were coded by the experimenter and then independently coded by another assessor; a clinical psychology trainee who was naive to the hypotheses of the study. Inter-rater reliability was calculated by dividing the total number of coding agreements by the total number of agreements plus disagreements and multiplying by 100. For concepts of learning disability, the rate of inter-rater reliability was 59% For implications of learning disability, the rate of inter-rater reliability was 69%

## Results

The majority of children were interviewed on three occasions, resulting in 30 interviews taking place. By dividing the children into two groups - those who were aged 4-6 years (pre-operational) and those who were 7-10 years (concrete) table 6.1 compares the mean scores of the younger and older groups on the concepts of disability and implications of disability protocols.

**Table 6.1 Means, ranges and standard deviations for concepts of disability and implications of disability protocols.**

age group	concepts of disability			implications of disability		
	mean	range	sd	mean	range	sd
4-6 yr olds (n=8)	1.5	0-3	1.31	0.86	0-2	0.9
7-10 yr olds (n=22)	2.91	1-4	1.11	2.09	1-3	0.68

In response to being asked to define learning disability and asked how a child becomes learning disabled, 4-6 year olds typically demonstrated reasoning within the pre-operational stage, oscillating between phenomenism and contagion. Seven to ten year olds responded at the contamination stage of the concrete operational period. Between these two age groups, responses from the older group were significantly more mature ( $t(28)=-2.94$ ,  $p<0.01$ ). Analysis of variance indicated that stage of reasoning increased significantly with chronological age ( $F(6,29)=27.08$ ,  $p<0.005$ ).

When asked about the impact of the learning disability upon the sibling and his or her brother or sister, 4-6 year olds' responses were generally at a pre-operational stage and 7-10 year olds' responses at a concrete operational level. Once again the older

age group's responses were more mature ( $t(27)=-3.86$ ,  $p=0.001$ ). Analysis of variance indicated that stage of reasoning increased significantly with chronological age ( $F(6,28)=13.53$ ,  $p<0.005$ ).

Amongst the 7-10 year olds, there were 11 siblings of children with severe learning disabilities and 11 of children with profound disabilities. The typical responses from the siblings of children with severe learning disabilities to the concepts of disability protocol ( $M=2.73$ ,  $sd=1.10$ ) were unremarkable from the typical responses from the siblings of children with profound learning disabilities ( $M=3.09$ ,  $sd=1.14$ ). Similar findings were found in response to the implications of disability protocol; siblings of children with severe learning disabilities ( $M=2.18$ ,  $sd=0.75$ ) and siblings of children with profound learning disabilities ( $M=2.00$ ,  $sd=0.63$ ). The younger age group was too small to make meaningful comparisons.

## **Discussion**

While the numbers of children involved in this study were small, the results suggest that as the siblings become older, their understanding of learning disability and their understanding of the implications of this condition increase. Their responses were also in line with what would be expected when measured along Piaget's cognitive framework: the majority of 4-6 year olds gave responses which were at the pre-operational stage and the 7-10 year olds tended to respond at the concrete operational stage.

There was some overlap of scores from the groups, with certain pre-operational children giving responses which were categorised into the concrete operational stage, and some older children who still gave responses which fell into the pre-operational stage. Examination of children's individual scores over the 3 years identified that while all children gave more sophisticated responses as they grew older, there were some children who always illustrated poor understanding in relation to their peers while others always indicated relatively good understanding. This suggests that there may have been different characteristics within families which had a measurable impact upon level of understanding.

Interestingly, while the majority of these children did not evidence understanding of disability at a higher level than would be predicted by Piaget's developmental stages, as had been hypothesised, the findings in relation to understanding of a disorder are an improvement on previous research. Glasberg (2000) found that even 17 year old siblings in her study still demonstrated understanding of autism spectrum disorders at the pre-operational level. Carandang, Folkins, Hines and Steward (1979) in their research with siblings of children with diabetes and Berry, Hayford, Ross, Pachman and Lavigne (1993) with adolescents with Juvenile Rheumatoid Arthritis found lower than predicted level of understanding of these particular medical conditions. Glasberg (2000) has suggested that it may be that conditions which are abstract and less common, such as autism, may simply be more difficult to grasp (both for adults and children). She notes that the children in her study were being compared with normative data on children's understanding of much more common medical illnesses such as colds, cancer and heart attacks (Bibace and Walsh, 1980). If normative data had been available on the general public's understanding of autism spectrum

disorders, then the siblings in her study may not have appeared to have had a delayed understanding.

Chapter 4 identified that there has not been much systematic investigation into young children's understanding of learning disability. Appendix A suggested that at least half of the population studied had a reasonable understanding of learning disability. If learning disability is, as it seems to be, an easier concept than autism for the general public to understand, then learning disability should be an easier concept for siblings to understand than autism.

Of further interest was the lack of measurable differences in the responses between the siblings of children with severe and profound disabilities. Previous research (Hames, 1997) had proposed that the siblings of children with severe disabilities were more likely to appreciate the cognitive implications of learning disability, as they initially saw their brother or sister as the same as them and then gradually realised that he or she was different. On the other hand, the siblings of children with profound disabilities tended to see their brothers and sisters as quite different to themselves and did not make comparisons on cognitive issues. Following up these same siblings in this study, and questioning them directly, this difference does not appear to have been sustained. It could be that the original speculation was incorrect. On the other hand, the measures used in this study may not have been sensitive enough and the sample not large enough. The overlap in scores between the age-groups could possibly be attributed to lack of sensitivity of the measure and it would certainly be interesting to continue to follow up these siblings in order to establish whether any differences emerge more clearly between the groups with time.

There have been criticisms of the Bibace and Walsh (1980) model. Burbach and Peterson (1986) have argued that many studies which have used this model give poor descriptions of their samples, lack control over potential observer bias, and pay minimal attention to issues of reliability and validity. Eiser (1989) has pointed out that specified questions have rarely been reported, making comparisons across different studies difficult. Hergenrather and Rabinowitz (1991) have also suggested that since there are questions over the validity and reliability of measures of Piagetian stages, researchers can not be sure of the relationship between Piagetian and Bibace and Walsh stages. If this model is not robust enough, this could have contributed to the overlap in scores achieved by children in the pre-operational and concrete operational stages and the lack of measurable differences in responses from siblings of children with severe and profound disabilities.

A further limitation of the study were the low rates of inter-rater reliability. The first two interviews took place before Glasberg's (2000) research was published, and so although the same questions were asked during all three interviews, the protocols were not finally determined until the third interview took place. This made it particularly difficult during the first two interviews to identify the answers to questions that were embedded in the text of a semi-structured questionnaire.

One hypothesis of this study had been that the siblings of children with learning disabilities would evidence a higher level of understanding of learning disability than would be predicted by Piaget's developmental framework. While this was true for a few siblings, it was not the case for the majority of children. These siblings were also

not compared with a normative sample of children. It may be that both the model and methodology which were used in this study were not completely appropriate and did not fully capture the extent of these young siblings' understanding. Further investigation of the range of methodologies that can be used with young children will be explored in the next chapter in order to identify methods that may more adequately measure these young children's abilities.

## **CHAPTER 5**

### **METHODOLOGIES WITH YOUNG CHILDREN**

#### **Introduction**

Pre-schoolers' views of the world - what they see, what they understand, how they communicate - can be quite different to adults' perceptions. If we wish to find out more about their world, and the differences and similarities between them and older children and adults, then the methodologies for gathering information from such young children have to be carefully considered. Pre-schoolers do not and can not respond to standard interview procedures in the same ways as older children and adults and so the process of gaining information from them must consider their particular needs. The ability to gain an accurate understanding of pre-schoolers' thoughts poses a challenge to us all - whether it be in a legal, medical or psychological context - and investigators have to be particularly cautious when designing methodologies for this young group. This has been particularly recognised in the arena of investigative interviewing of pre-schoolers who have been abused (Sternberg et al., 1997). Through reviewing previous research conducted with young school age and pre-school children it has been possible to identify some of the ways in which researchers need to exercise particular caution when interviewing these children.

The literature highlights at least five areas where researchers need to be sensitive when working with pre-school children. First, it is important to consider the familiarity of the setting in which information is gathered, and particularly to ensure that young children are not anxious or do not become distracted or tired during the



investigation. Secondly, and for similar reasons, the investigator needs to consider the importance of building a rapport with the child in order to help him or her feel at ease throughout the investigation. Thirdly, researchers must be aware of the salience of concepts introduced in discussion. Young children have to be familiar with and understand the issues being discussed. Fourthly, the approach used has to be at the appropriate cognitive level for the child. If questions are asked then these have to be structured so that they are easily understood by the child and the level of response expected from the child (and particularly if verbal responses are expected) should not be too complex so as to mask his/her true level of understanding. And finally, there is the issue of whether the methods used should be verbal, or whether they could be visual, motor or a combination of approaches. Each of these will be considered in turn.

### **Familiarity of setting**

The setting in which information is gathered is important as it can have an impact both upon a child's behaviour and upon his or her communication. This was identified in early research into sibling interaction. Initially, research in this area tended to focus exclusively on parental interview and laboratory observations (Lamb, 1978a, 1978b). These studies suggested that influences upon sibling interactions included the age of the children and the presence or absence of parents. At 12 months infants tended to follow while their older siblings led; six months later, the infants were initiating more social behaviour. Repeated observations in the home setting replicated these findings but whereas the studies by Lamb had shown low levels of sibling interaction in the laboratory, observations in the home setting indicated much higher levels of both positive and negative interaction (Abramovitch, Corter and

Lando, 1979). The conclusion of this later study was that the quality of interactions between siblings is rich and varied and a true picture of young children's natural behaviour may not be gained if observations only occur in unfamiliar settings.

As well as affecting the quantity of pre-schoolers' physical and verbal interactions, environment has an impact upon the quality of verbalisations. Numerous laboratory studies by Ruble (e.g. Ruble, 1983) of young children's abilities to make social comparison statements indicated that before the age of 7, young children rated their own performance on tasks exclusively in terms of whether or not they had completed these tasks, and that they were not able to take account of their performance in relation to others until at least seven years of age. However, observations of children in natural settings later indicated that children as young as 3 and 4 used and understood a range of social comparison statements (Mostache and Bragonier, 1981; Chafel, 1986).

It is now recognised that children interact differently and do not utilise their full capacity for language in an unfamiliar setting, highlighting the importance of any investigations taking place in a known environment. If it is not possible or appropriate to see children at home then they are seen at school or nursery. So, when asking pre-schoolers about their friendships with peers with physical disabilities, Nabors and Keyes (1997) interviewed children in a room adjacent to their classroom. The same approach has been used by Diamond and her colleagues when investigating pre-schoolers' understanding of disability (e.g. Okagaki, Diamond, Kontos and Hestenes, 1998).

### **Rapport with the investigator**

Clinical experience has highlighted the importance of developing rapport, and helping children be at ease, before gathering information from them (Gordon, Schroeder, Ornstein and Baker-Ward, 1995). Apart from developing rapport at the start of an interview, interviewer supportiveness throughout contact is relevant. This has been recognised as a particularly important issue when collecting evidence from children within the legal system where it had been thought that interviewers who were supportive of children could have been accused of inadvertently encouraging inaccuracies through reinforcing false statements (Goodman, Rudy, Bottoms and Aman, 1990). Further research has not provided support for this view. Imhoff and Baker-Ward (1999) interviewed 3 and 4 year old children about a personally experienced event (reading about and building a volcano) after a 2 week delay. They were interviewed either by an experimenter who was introduced as “nice” and who smiled and made positive comments throughout the interview, or by another who was neutral and did not make positive comments. Interviewer supportiveness did not affect recall nor suggestibility (the tendency to be misled by false suggestions). A similar design used by Goodman, Bottoms, Schartz-Kenney and Rudy (1991) looked at 3-7 year olds’ memory for an inoculation. In this situation they found that the supportive interview actually increased the accuracy of 3-4 year olds’ responses.

### **Salience of concepts**

The salience of concepts has been found to play a major influence upon research outcomes. When concepts have been introduced to young children that have relevance and importance for them they can respond in a totally different way. One example has been children’s responses to failure. Initial research suggested that

younger and older children responded to failure in very different ways and that only children aged 9 and above suffered from a state of motivational helplessness following poor performance in tasks. It was suggested that helplessness was related to children's beliefs about the malleability of intelligence. Children who believed that intelligence is a fixed quality viewed their own poor performance as implying low ability and this led to helplessness, whereas children who believed that intelligence is malleable and can be increased through effort found it easier to maintain adaptive motivational behaviour in the face of failure (Dweck and Leggett, 1988). However, if children under the age of 9 do not have concepts of intellectual ability (Nicholls, 1978), they could not develop views of intelligence as either fixed or malleable. This was the argument used by Heyman, Dweck and Cain (1992) who suggested that young children were not exhibiting helplessness in these early investigations because they were being assessed on a concept that was not salient for them. If young children are exposed to a trait that is relevant to them, then they too may experience helplessness. Heyman et al. (1992) chose the concepts of "goodness" and "badness" as areas which are particularly important to young children - where they receive frequent feedback and which are often mentioned in children's books. They asked 5 and 6 year olds to enact achievement situations in which they were criticised by a toy teacher and told that they were bad. Some of these young children later expressed thoughts and feelings and displayed non-constructive problem-solving strategies that were characteristic of the helpless pattern previously seen in older children. They were more likely to view mistakes in the toy classroom as evidence that a child is "bad" and to expect that a child who exhibited negative behaviours would continue to behave in this way. These children had in fact developed enduring concepts of "badness" in the same way that some of their older counterparts had

developed concepts of intelligence as fixed. By introducing a concept that was found to be more salient for young children - “goodness” rather than intelligence - the research contradicted previous studies and illustrated that 5 and 6 year olds are as likely as 9 year olds to experience motivational helplessness.

This important area of “goodness” has also been used to explore young children’s ability to use information about past behaviour to make inferences about stable dispositions (Cain, Heyman and Walker, 1997). Research had suggested that children under the age of 8 tended not to use information about past behaviour to predict future behaviour (Rholes and Ruble, 1984). However Cain et al. found that after listening to stories about “good” and “bad” characters (including Cinderella and her ugly sisters) 4 and 5 year olds were able to make predictions about which of the characters would be more likely to share resources or to help someone. Once again it was suggested by the researchers that because the concepts of “goodness” and “badness” were salient for the children, so they found the task easier and were more able to indicate their true level of functioning.

While Nicholls (1978) had argued that children under the age of 12 do not have a true concept of intellectual ability, further research has shown that these young children can display common-sense notions of intelligence if the concepts introduced are more specific and understandable for them. Yussen and Kane (1983) compared first graders (6 year olds) and sixth graders (11 year olds) and found that when they asked the children whether “smart” people were any better at general functioning (remembering, understanding, reading, helping), the 11 year olds tended to distinguish general mental qualities from academic and social qualities: 6 year olds could not

make these distinctions. However when questions were rephrased and presented with examples (remembering the words of a song, helping with chores around the house - all examples which were more salient for them) responses from 6 year olds were more similar to those from 11 year olds. When the questions were yet more specific (asking about the qualities of good and bad readers rather than just children who were smart), the younger children were able to make even greater discriminations between high and low ability individuals. So while initial findings suggested that younger children tended to see high-ability individuals as being different from low-ability individuals in many respects, younger children could be much more discriminating when the ability domain and potential characteristics were more specific for them. A similar point was made by Cain et al. in their research. They suggested that they had obtained clearer results from their 4 and 5 year olds because they had asked about clear behaviours regarding Cinderella and her sisters ("who will share?") whereas other studies had been less specific ("who is nice and kind?").

In relation to the study of false belief, some studies have considered the difficulties younger children have in setting aside reality from false belief. When they know where an object truly is they cannot ignore this. One line of research has been to reduce the salience of reality, so, for example, Fritz (1992) altered the standard false belief task by simply asking children to pretend that a chocolate was moved from one location to another. This resulted in improved performance by 3 year olds.

Linked to the salience of concepts are issues related to gender, age and race. Research has shown that children indicate preferences for peers of the same gender and age (Hartup, 1976; Maccoby, 1988) and ethnic group (Ramsey and Meyers,

1990). (See also the research by Sigelman, Miller and Whitworth (1986), referred to in chapter 3.) Young children will therefore be more likely to be interested in, identify with, and subsequently respond better to stories and vignettes of children of the same race, gender and age, completing tasks which they can relate to themselves.

What these studies illustrate is that if concepts which are salient are introduced to young children, they are more likely to understand what is expected of them, more likely to identify with the processes being examined, and therefore more likely to reveal their true or normal way of functioning.

### **Information gathering at the appropriate cognitive level**

At the start of any investigation it is important to ensure that very young children understand both the concepts introduced and the procedures to be used. This is commonly checked in research with pre-school children by the use of pre-testing. In Nabors and Keyes' (1997) study, before being asked to rank line drawings of children with various physical disabilities, respondents were first shown a line drawing of a child in a wheelchair and asked, "What is this child sitting in?" and "Can she walk?" and for a child with a leg brace, "What's wrong with this child's leg?". Butler and Ruzany (1993) investigated the effects of social environment upon the development of normative concept of ability (the process of comparing self to others in order to evaluate one's own performance). Children's development of normative concept of ability is assessed by asking them to compare the performance of others on four different ability tasks. Pre-testing ensured that children understood some basic mathematical procedures that are necessary to assess normative concept of ability; only those children who successfully understood these tasks continued in the study.

Wiley and Hendricks (1998) stressed that it may even be important to practise items at the start of an investigation to ensure that pre-schoolers understand simple words like “point”.

Understanding the concepts and procedures of investigation has been a particularly important consideration in the interviewing of pre-school children who have been sexually abused - a group of children who have been considered notoriously difficult to interview (Sternberg et al., 1997). Steward and Steward (1996) completed an exhaustive study with 130 3-6 year old children following a paediatric outpatient appointment to investigate their memory of body touch during their medical appointment. They compared both standard and enhanced forms of interviews. While the enhanced interviews, which used various props (dolls, drawings and photographs) were effective in facilitating recall, they emphasised the importance of pre-testing children on any procedures, and if necessary, pre-teaching with materials that require children to make choices. For example, if asking children to make choices from photographs, they could be asked to make choices with neutral content first (e.g. nonfamily members).

It is necessary to consider the developmental level of language used by the investigator to ensure that it is not too complicated for pre-schoolers to understand. Research by Saywitz (Saywitz, Nathanson and Snyder, 1993; Saywitz, 1995) has noted that children under 8 years can not understand compound questions that contain embedded clauses, and has recommended that interviewers avoid three and four-syllable words, pronouns, the use of relational terms such as more and less, and passive questions. Saywitz (1995) also warned against changing unexpectedly from



one topic to another. Dale, Loftus and Rathburn (1978) found that 4 and 5 year olds made more mistakes with questions containing definite articles (e.g. “did you see the red shirt?”) than indefinite articles (e.g. “did you see a red shirt?”).

Lack of consideration of the use of developmentally appropriate language with young children can lead to a number of problems. One line of enquiry has been the impact of comprehensible language on accuracy of responses and resistance to suggestibility. Imhoff and Baker-Ward (1999) assessed this with 3 and 4 year olds. They did not find that developmentally appropriate language altered accuracy of responses from their sample, though amongst the younger children (39-47 months), those who received more easily comprehensible questions were more likely to correctly reject misleading questions. They concluded that the developmental changes which are occurring in young children’s language and comprehension at this time may have been the cause of the differences between the younger and older children’s responses. Younger children fail to ask for clarification if they do not understand what they have been asked (Flavell, Speer, Green and August, 1981) and so they may be more likely to go along with the questioner if they have not fully understood the questions.

The impact of not considering young children’s cognitive capacity when demanding responses may be that they will not illustrate their true capacity as they become “overloaded” with information. This has been a criticism of Nicholls’ (1978) investigation (referred to earlier) of slightly older children’s understanding of ability and effort. He asked children to observe a film in which pairs of children exhibited different degrees of effort with a task, resulting in the same success or different amounts of success. He then asked if one child in the film was working harder or

whether they were both working the same, and if one child was cleverer or whether they both were the same. His results suggested a developmental trend; 5 and 6 year olds could not distinguish between effort, ability and outcome whereas by the age of 12 and 13, children understood that it is the combination of effort and ability that results in outcome. Nicholls argued that young children of 5 and 6 do not have an understanding of ability which is separate from effort. However it may well have been that his experimental method - children were asked to manipulate two independent variables, effort and ability, simultaneously for two separate subjects - was too complicated for the youngest children in his experiment. Simpler methodologies (for example, Yussen and Kane, 1983) have subsequently indicated that when young children are asked to deal with one concept at a time and do not have to manipulate abstract issues then they are better able to illustrate their ability to distinguish the characteristics of high and low ability individuals.

A criticism of Piaget's work which was discussed in chapter 2, was that his experiments were not always precise enough, did not concentrate solely on the ability being measured, and expected too much of the child. So while investigation of object permanence demanded that the infant search for the disappearing object, later research which required a simpler response illustrated how object permanence was present at an earlier age (Baillargeon, Spelke and Wasserman, 1985).

A further consideration is whether questions should be open or closed. It is recognised that both types of questioning have their advantages and disadvantages when talking to young children. The usual criticism of closed questions is that the child is restricted to responding in ways which have been designed by the adult

researcher who may not have predicted the variety of ways in which children respond (Babbie, 1989; Yussen and Kane, 1985). On the other hand, forced choice questioning sometimes introduces concepts that children may otherwise have failed to mention. So, for example, Frieze (1981) in her investigation of children's explanations of their successes and failures, found that children rarely mentioned luck during open-ended questioning but that this frequently occurred during closed questioning. Goodman (1990) found that when children were presented with forced-choices such as "Can the retarded be pretty, athletic and smart?" they answered positively yet they did not include these attributes when asked "What is mental retardation?" An investigation by Saywitz, Goodman, Nicholas and Moan (1991) with 5-7 year old girls regarding recall for bodily touch, found that while they provided more information in response to closed questions, they tended to be more accurate when answering open questions. Similarly, Steward and Steward's (1996) study of 3-6 year olds' recall indicated that reports based on free recall were more accurate than those based on specific or yes/no questions. While open-ended questions are frequently recommended in social research as they allow children maximum spontaneity (Babbie, 1989), the difficulty for very young children may be that while they have the concepts required to answer the questions, they may not yet have the verbal facility to put their answers into words and so their true responses may be underestimated or distorted (Shantz, 1983). Another criticism of open-ended questions is that it can be difficult to interpret children's responses. Should children's responses be taken literally or could they be using metaphoric labels? For example, when diabetic children say that they are ill because they have been punished for eating too much sugar, could this indicate immanent justice, or simply be a metaphor for a biological process of which they are quite aware (Springer and Rukel, 1992). Finally,

in open-ended situations children tend to be highly susceptible to demand characteristics and tend to base their responses on any salient part of the question that seems to signal the experimenter's intent (Keil, Levin, Richman and Gutheil, 1999). For all the reasons mentioned above, it would be advisable in research with young children to offer the possibilities of responding to both open and closed questions.

An important issue, bearing in mind pre-school children's poor attention span, is the length of time which investigations should take. This was raised in Miller, Holmes, Gitten and Danbury's (1997) investigation of 3-5 year olds' understanding of false belief tasks. They compared a standard false belief assessment with an alternative form of assessment. In the standard assessment (unexpected contents), the children were presented with a crayon box which contained candles and a plasters box that held a roll of tape and asked "A boy (or girl) from your class has not seen inside this box. If he (she) sees the box all closed up like this, what will he (she) think is inside it?" In the alternative assessment, the children were taught how they would not be able to see through a tunnel that was bent and then asked "A boy (girl) from your class has not learned the rules and has not played the game yet. Will he (she) think he (she) can or cannot look through this tunnel and see the car at the other end?" On the premise that children would show similar degrees of mastery on all forms of false belief tasks, they were surprised to find that the children in the alternative assessment did not do so well. They surmised that the more complex wording in the alternative form may have been more difficult for the children, but also that the longer time span between initial mistaken belief and test question in the alternative form (2 or 3 minutes) than the standard assessment (a few seconds) may have affected children's concentration and subsequent responses.

Similar problems arose in Ashcermann, Dannenberg and Schulz's (1998) research into whether children's recall of a personally experienced event could be increased through the use of photographs. They found that children who received training in how to use photographs as memory aids immediately before an interview with photographs recalled less than children who were interviewed with photographs without training. It seemed that pre-schoolers understand the function of photographs as retrieval aids and do not need training: in fact the training made the whole interview longer, probably exceeding the concentration span of some of the children, thereby reducing recall.

Finally, as with all interviews, researchers must guard against response bias: the tendency to always respond in a certain way, for example always saying yes or always responding in a certain direction. This can be a particular problem with young children if they are not completely sure of what is expected of them. One method for dealing with response bias has been to counterbalance questions or the presentation of materials. This was used by Nabors and Keyes (1997) who reported that when children were asked to rank their preferences for line drawings of children with and without physical disabilities, response bias was reduced by first presenting drawings from right to left and then from left to right.

### **Verbal and visual techniques and the use of "props"**

Goodman (1990) carried out an interesting study into whether children's expressed perception of learning disability (or "mental retardation" as it was termed then) would

be affected by different methods of enquiry. She asked 8 year olds to listen to a short vignette of a functionally disabled but unlabelled child, and then to comment on the child's difficulties and probable outcome. She also asked children to verbally define mental retardation. Following the verbal tasks, the children were given two visual tasks. First to draw a child with mental retardation and secondly to identify children with mental retardation from 15 photographs. Finally the children were given two figures, labelled "dumb" and "retarded". They had to show where these figures would sit in a toy classroom in relation to other "smart" and "dumb" children, both before and after they had received help.

After listening to the vignette, the children rarely recognised the learning disability and thought that any difficulties would improve. The children's responses changed as questions were open or closed. In their drawings of disabled children and selections from photographs, they made more associations with physical disabilities. Finally, when asked to demonstrate where the "retarded" child should sit, most placed him/her in a separate classroom where the child remained, even after remedial help, suggesting lack of ability to improve.

What these results demonstrate is that a young child's understanding of lack of ability is complex and that different methods of enquiry may tap into different aspects of understanding. While an adult may have recognised all of the above scenarios as referring to the same child with a learning disability (or mental retardation), it is questionable whether the children in Goodman's study were considering similarly disabled children in every exercise. She suggested that their shift to displaying learning disabled children with more physical disabilities in the visual tasks could be

explained as an act of conformity. As it is not possible to draw a mental disability, children may have thought that the exercise was to portray physical disabilities. On the other hand, non-verbal expression may allow children to express their true impressions - either because they are cautious about saying certain things verbally or because they do not yet have the verbal ability to express these feelings.

While it has been recognised that pre-school children's free recall of events can be as accurate as accounts from older children, their reports tend to be briefer (Goodman, Aman and Hirshman, 1987; Price and Goodman, 1990). It has been suggested that this is because they believe that adults already know the answers and that they therefore do not need to tell the questioner everything (Hulse-Trotter and Warren, 1990). Some research has looked at the effectiveness of props in enhancing responses from these younger children based on the observation that visual cues are particularly effective with very young children. Nelson and Ross (1980) asked parents of 21-27 month old children to keep diaries of their toddlers' memories. They found that 48% of verbal memories were stimulated by the sight of an event, 32% by sight of a person, while only 5% were stimulated by a parent's question. The use of visual props, and dolls in particular, has been of specific interest in the investigation of sexual abuse. While there has been some debate about the effectiveness of anatomically correct dolls in increasing accuracy of reports of bodily touch from 3 and 4 year olds (Ceci and Huffman, 1997), many clinicians and researchers consider that dolls can improve accuracy. Steward and Steward (1996) interviewed children about bodily touch and compared traditional verbal interviews with interviews enhanced through anatomically detailed materials (dolls and drawings), photographs and medical props. They found that the dolls, drawings and photographs increased

enhanced through anatomically detailed materials (dolls and drawings), photographs and medical props. They found that the dolls, drawings and photographs increased accuracy of recall for children across the ages 3-6 years. Priestley and Pipe (1997) similarly found that increasing the similarity of props to the items they represented, significantly increased the amount of information reported by 5 and 6 year olds.

The conclusion to be drawn from these discussions is that researchers must be especially careful when designing research methodologies for use with young children and particularly careful in their conclusions. It may be helpful to use a range of methodologies in order to validate conclusions and these may also be useful in gathering a fuller understanding of what young children are trying to indicate.

#### **Applicability of findings to current research**

In relation to the studies which follow, it was recognised that particular attention was needed in a number of areas. Since familiarity of setting is so vital, piloting was initially carried out in the home, however because of some reticence expressed by children in front of their parents, it was thought to be more appropriate to move the experimental procedure to another known environment, the school or nursery. A substantial amount of time was spent developing a good rapport with the children involved in the studies. Salience was considered in a number of ways: since children were going to be asked to think about other children, these needed to be children of the same gender and ethnic group as themselves, performing tasks that were relevant to them, and they had to be asked questions that had relevance for them. Regarding children's cognitive level, the procedure needed to be kept short in order to maintain concentration, concentration levels was checked during the procedure, pictures were



limitations of the studies. With these considerations in mind, the next four chapters (6 to 9) introduce and explain the methodologies to be used in studies II, III and IV (chapters 10 to 12).

## **CHAPTER 6**

### **DEVELOPMENT OF METHODOLOGY I:**

#### **NORMATIVE CONCEPT OF (DIFFICULTY AND) ABILITY**

##### **Introduction**

When adults state that “this is too hard”, we can reasonably expect that they are able to distinguish between whether the activity is too hard for them or too difficult for most adults. However, when a very young child states that “this is too hard”, it often is not clear whether the activity is too difficult for most children or whether it is just too difficult for this particular child (Nicholls and Miller, 1984). This is because young children do not clearly differentiate between difficulty and ability. Before the age of 7, children tend to be very subjective in their opinions of their own ability and make self-referenced rather than norm-referenced judgements of ability (Nicholls and Miller, 1984). High ability is implied by performing a task which he or she had not been able to achieve before. While pre-schoolers may be very interested in others’ performances (Mostache and Bragonier, 1981; Ruble, Feldman and Boggiano, 1976), they do not yet use information from others to make social comparisons or evaluate their own performance (Ruble, Boggiano, Feldman and Loebel, 1980).

Nicholls and Miller (1983) have identified three different levels through which young children pass as they gradually learn to differentiate the concepts of difficulty and ability. These they have called ego-centric, objective and normative concepts of difficulty and ability. A child is considered to be at the ego-centric level when he or she judges tasks on his or her own ability to succeed. A task which is likely to be completed is perceived to be easy whereas a task which is likely to be failed is

perceived to be hard. At the objective level children understand that certain properties of a task (e.g. more pieces in a jigsaw) make the task more difficult. However the child's own performance is subjectively evaluated without reference to others. If a child judges a task to be difficult it still is not clear whether the child's failure is due to the "hard task" or "hard for me". At the normative level there is a clear differentiation between the concepts of difficulty and ability. Tasks are judged to be difficult if few others can complete them and a child is judged to be clever if he or she can complete a task which few others can do.

The traditional method of measuring normative concept of difficulty and ability (Nicholls and Miller, 1983) is to present children with a number of closed boxes, each said to contain different jigsaws. Normative difficulty is indicated by varying the number of faces on each of the lids showing how many children have succeeded or failed on each of the jigsaws. After the jigsaws have been presented to the children they are asked:

- which one could only very smart children do?
- which one would you have to be really smart to do?
- how can you tell you'd have to be really smart to do that one?

Children begin to correctly answer these questions from the ages of 6 or 7. Since the ability to integrate two different types of information (e.g. difficulty and ability) is considered to be a concrete operational skill (Inhelder and Piaget, 1964), it is unsurprising that pre-operational children have been found unable to complete this task.

Nicholls and Miller (1983) have examined the development of the three levels of differentiation of difficulty and ability (as described earlier in chapter 4). They studied a group of 6 year olds both cross-sectionally and longitudinally with both normative difficulty stimuli and objective difficulty stimuli. Normative difficulty stimuli were the four closed boxes said to contain different puzzles, which had been successfully completed by different numbers of children. Objective difficulty was manipulated by cutting the same picture into different numbers of pieces. They first ensured that the difficulty cues with each task had been comprehended (“which task can nearly all/hardly any children do?” for the normative difficulty task and “which one has the most/least pieces?” for the objective difficulty task). The children were then asked which tasks could only be completed by “smart” children and how they knew this. Responses were categorised into: normative difficulty (recognising that the puzzle which fewest children could do required most ability); objective difficulty (recognising that the puzzle with most pieces required most ability); and egocentric difficulty (failure to choose the most complex jigsaw). Almost all children who had mastered the normative difficulty task also mastered the objective difficulty task, but many who had mastered objective difficulty did not master normative difficulty. Re-testing one year later showed a significant upward trend. Some children who had initially not performed at the objective level (and so had been presumed to be performing at the egocentric level) had moved to the objective level. In addition, others who had been performing at the objective level had moved on to the normative level. Nicholls and Miller (1983) suggested that this supported their hypothesis that the three levels of difficulty form a sequence with the egocentric level subsumed by and preceding the objective level which in turn is necessary for children to move onto

the normative level. There were a small number of children who apparently showed inverted acquisition of levels, achieving the normative level before the objective level. A few other children appeared to lose their ability to apply their understanding of normative difficulty at the second date of testing.

Butler and Ruzany (1993) have also assessed young children's normative concepts of difficulty and ability using the same task with slightly different and more detailed wording of the questions:

- which puzzle would a child have to be really smart to do?
- how can you tell?
- why did only one child solve this (*the difficult*) puzzle?
- why did so many children solve this (*the easiest*) puzzle?
- which puzzle could only really smart children do?

The studies described below examine the wording which has been used in traditional assessments of normative concept of difficulty and ability. They question whether children acquire normative concept at the age which has been suggested or whether the nature of the questioning may be too difficult for young children to follow. While young children may hold independent concepts of difficulty and ability, they may have difficulty demonstrating these when complex judgements are required. On the other hand, faced with more careful and structured questioning, younger children may be able to illustrate that they have greater capacity and understanding than has been assumed. Improvements in the structure and clarity of questions may also result in

more consistent responses and reduce the likelihood of children apparently achieving the level of normative concept one year and not the next.

The technique that is investigated in these studies is to “scaffold” children’s thinking. This is a term which was proposed by Bruner and his colleagues (Wood, Bruner and Ross, 1976) and refers to the wide range of ways in which a more able tutor can assist children to achieve goals that would otherwise be beyond them. The tutor considers the child’s existing developmental level and the potential level of development which he or she can reach with help. The tutor then offers help within this intermediate area. This is essentially what Vygotsky (1986) described as the “zone of proximal development”. As the child becomes more independent at this particular level, so the scaffolding can be removed.

In the following studies it is suggested that the traditional forms of assessment of normative concept expect children to make a number of simultaneous judgements on their own. It is hypothesised that by asking children additional questions to those asked in traditional assessment, they would be helped to think through the incremental steps involved in differentiating difficulty from ability. In this way they can draw on relevant knowledge that they may not have been able to apply on their own. This should result in more younger children exhibiting the normative concept of difficulty and ability. The information gained through this investigation would then be important in further investigation of young children’s understanding of learning disability.

- She did not understand how to build a tower.
- He wasn't able to comprehend what was required.

### *Development of questionnaire*

During the interview, children were asked whether they thought the child on the video could complete various other tasks in order to test their understanding of an underlying learning disability not specific to the task on the video. These other tasks were to be activities which could be completed by the experimental children themselves and therefore should have been easily completed by mainstream 6 year olds. Three inset jigsaws were chosen. In order to ensure that the jigsaws could be completed by the experimental children, all three jigsaws were piloted with 12 2-4 year olds from a local playgroup. The most difficult jigsaw was completed independently by all children over the age of 3 years 4 months. Children over 3 years 4 months could correctly identify which was the "hardest" jigsaw and all those over 4 years 2 months could identify the "easiest" jigsaw.

At the start of the interview children were told that they were going to watch a video and two drawings of the videoed children were laid out in front of them. The function of these drawings was to act as visual aids which would help children's recall of the children in the video. This was based on the findings of research suggesting that visual aids help with recall (Steward and Steward, 1996; Priestley and Pipe, 1997). Before seeing the video they were told the names of the videoed children and they were identified from the drawings. Children then watched the video and answered questions from the questionnaire. Initially they were asked about the abilities of both children on the video but it became very confusing for them as they had to constantly

swap from thinking about one child to thinking about the other (as discussed by Saywitz, 1995). Another possibility would have been to show the video twice, asking about one child on each showing. It was felt that this would have been too long and boring for the children and would have resulted in poor concentration. Questions therefore centred around the learning disabled child. Children were asked:

- “did ... count all his/her fingers, up to 10?”?
- if not, “why not?”
- “did ... build a proper tower?”
- if not, “why not?”
- “could ... build a tower with these cups (*tower shown to child*)?”
- if not, “why not?”
- “could ... complete these jigsaws (*jigsaws shown to child*)?”
- if not, “why not?”
- “is ... like a six year old or like another number?”
- “did you know anyone else like ...?”

The questionnaire was designed to include both open and closed questions and children could also respond by just nodding or pointing. The opportunity to respond in minimal ways was provided for the youngest children in particular whom it had been thought would be the least articulate. Open and closed questions were provided as children frequently offer more information in response to closed questions (Frieze, 1981) but tend to be more accurate when responding to open questions (Saywitz, Goodman, Nicholas and Moan, 1991).



## **Pilot 1**

### ***Method***

This pilot was carried out with 23 children, aged between 2 1/2 and 9 years. Six experimental children were the siblings of children with disabilities and 17 controls had older non-disabled brothers and sisters. The video and questionnaire as described above were used.

### ***Results***

Two controls who were under the age of 3 years were unable to complete the interview. On the basis of this and the difficulties experienced by the younger children in completing the most complex jigsaw and identifying this as the “hardest”, it was decided to exclude children under the age of 3 from the research. All the other children in the pilot could complete the interview, the siblings of disabled children generally giving clearer and fuller explanations for why the videoed child could not complete the tasks.

### ***Discussion***

Some of the control children were found to have contact with disability either through a disabled relative or through having statemented children with special needs integrated into their class at school. It was therefore recognised that this would need to be checked when identifying suitable controls. All the children had been interviewed at home, with parents present. The siblings of children with disabilities seemed to be embarrassed to talk about disability in front of parents, as though they were being negative or disloyal to disabled siblings. This was noticed and discussed by two parents. It was therefore decided that interviews should take place away from

families, but in another known environment, school. This embarrassment about disability was also to be examined further by the addition of a social acceptance questionnaire.

## **Pilot 2**

### ***Method***

The second pilot was carried out with six children who were aged between 4 and 6 years. Two were siblings of children with disabilities and four served as controls. The interviews were carried out at school. The video and questionnaire were the same as before with two further sections added to the questionnaire, assessing perceived social acceptance and normative concept of ability (sometimes referred to as the normative concept of difficulty and ability).

Six additional questions on social acceptance were included, adapted from Harter and Pike's (1984) scale of perceived competence and social acceptance. These questions involve pairs of pictures of similar children with accompanying text (e.g. "This boy usually gets asked to play with the other children. This boy gets lonely sometimes because the other children don't ask him to play."). Presentation of the least and most popular children alternated from left to right. Following explanation of the pictures, children were asked to identify which child in the pictures was most like the child on the video. Children were initially asked these questions about both children on the video, but they found it confusing to change from thinking about one child to thinking about the other, so the questioning was altered and children were only asked about the disabled child. The gender of the children in the questions was matched to the gender of the responding child. The aim of these questions was to identify whether there

## **Study A**

### **Method**

The study compares children's performance on Butler and Ruzany's traditional form of questioning with the new form of questioning developed for this study and described below. The Butler and Ruzany questioning was chosen as it was thought that the more detailed wording might aid children's understanding.

### ***Participants***

Forty children were involved in this study, from the same school. There were ten 5 year olds from year one, ten 6 year olds from year one and twenty 6 year olds from year two. The 6 year olds from year one were aged from 6 years to 6 years 2 months. The 6 year olds from year two were aged from 6 years 3 months to 6 years 11 months.

### ***Procedure***

The experimenter was introduced to the class by the teacher and it was explained that she was going to see each of the children on his/her own in a quiet corner of the classroom. They were selected sequentially from the class register and alternatively interviewed with either the traditional or new form of questioning, each interview lasting approximately three minutes. Equal numbers of children were interviewed with each procedure.

### ***Materials***

The new form of questioning involved more scaffolding of responses at the beginning, helping children to think through which were the easiest and most difficult jigsaws. This questioning ended with the Butler and Ruzany questioning. In all

interviews the words “jigsaw” and “clever” were substituted for “puzzle” and “smart” as these were considered to be more appropriate to a British sample. Both forms of questioning are described below.

Study A: traditional questioning:

- which jigsaw would a child have to be really clever to do?
- how can you tell?
- why did only one child solve this (*the difficult*) jigsaw?
- why did so many children solve this (*the easiest*) jigsaw?
- which jigsaw could only really clever children do?

Study A: new questioning:

- which jigsaw can nearly all the children do?
- if lots of children can do this jigsaw, do you think it is a hard jigsaw or an easy one?
- which jigsaw can hardly any children do?
- if hardly any children can do this jigsaw do you think it is a hard jigsaw or an easy one?
- so which is the hard jigsaw and which is the easy one?
- which jigsaw would a child have to be very clever to do?
- how can you tell?
- why did only one child do this jigsaw?
- why did so many do this one?
- which jigsaw can only really clever children do?

Nicholls and Miller (1983) suggested that a child possesses understanding of normative concept if he or she can identify that a clever child was (a) one who completed the jigsaw that only one child could do, and (b) recognised that only one child could do this jigsaw because it was difficult (or hard). Butler and Ruzany similarly recognised these separate responses and gave a score of 2 for full understanding (both responses) and 1 (for 1 response) for what they called partial understanding. Piloting for this study indicated that some of the younger children who clearly did not understand the questions, made guesses which sometimes resulted in a correct identification of the normatively most difficult task or referred to their chosen jigsaw as the hardest. Since children who had received the new questioning had been scaffolded through thinking which jigsaws were the hardest and the easiest, this made it more likely that they might refer to a jigsaw as being the hardest. As this increased the probability that some children could be credited with achieving partial understanding of normative concept when in fact they had not, it was decided that children would only be scored as having full understanding (both questions correct) or none (only one or no questions correct).

## Results

**Table 6.1. Number of correct responses to traditional and new questioning (study A) of normative concept of difficulty and ability.**

age group	traditional questioning	new questioning
5 year olds-year 1 (n=10)	1/5	0/5
6 year olds-year 1 (n=10)	1/5	1/5
6 year olds-year 2 (n=20)	5/10	8/10

Note: values indicate numbers of children giving correct responses

Amongst the ten 5 year olds, only one demonstrated normative concept using the traditional method and none with the new method. Amongst the ten 6 year olds in class one, one child demonstrated normative concept with the traditional method and one with the new method. Between the older 6 year olds from class two, there was a slight but non-significant difference. Five out of ten of the 6 year olds demonstrated normative concept with the traditional method, whilst eight demonstrated it with the new method. It may have been that these older 6 year olds were closer to the stage of developing normative concept of ability and these additional questions facilitated their cognitive processes.

Further analysis of the children's answers involved looking at the points at which they gave the wrong responses. Thirteen children gave the wrong responses to the traditional questioning. Ten of these failed at the first question: "which jigsaw does a child have to be very clever to do?" Eleven children gave the wrong responses to the new questioning, though this time only six failed at the same question. This suggested that the earlier scaffolding may have been helping them. However a further four failed at the later question "why did so many do this one?", usually with the response: "because they're clever". This focus from one jigsaw to another may have lead to confusion in the children's minds and caused them to respond inappropriately to the last question: "which jigsaw can only really clever children do?"

## **Discussion**

The pattern of responses suggested that the new form of questioning may have helped some children, particularly the older 6 year olds, but because they did not yet have a

firm grasp of the concept of normative difficulty and ability, they were easily confused if the emphasis changed from one task to another.

Whilst the Butler and Ruzany questioning had been used because it was thought that the additional questions were clearer, this study suggested that these additional questions may have actually confused the children. The move from questioning about one jigsaw to the other seemed to cause them to doubt their original decision. The importance of avoiding sudden topic changes has already been raised in chapter 5 (Saywitz, 1995). It was decided that the next study would involve the Nicholls and Miller questioning.

## **Study B**

### **Method**

Once again this study compares children's understanding of the normative concept of difficulty and ability by comparing their performance on traditional and new questioning. The Nicholls and Miller questioning (adapted for a British sample of children) replaced the Butler and Ruzany questioning.

### ***Participants***

One hundred children were involved in this study, drawn from three different schools. There were fifty 5 year olds and fifty 6 year olds, from years one and two.

### ***Procedure***

A psychology graduate who was naive to the hypotheses of the study carried out the interviews. Children were seen sequentially from the class register and interviewed

with either the traditional form of questioning (Nicholls and Miller) or the new form (described below). Equal numbers of children were interviewed with each procedure.

### ***Materials***

As before, the new form of questioning began with more scaffolding of children's responses at the beginning, helping them to think through which were the easiest and most difficult jigsaws. The Nicholls and Miller questions followed. Piloting of this study indicated that even the three questions used by Nicholls and Miller sometimes confused children as they doubted their response to the first question: "which one could only very clever children do?" when it was apparently repeated: "which one would you have to be really clever to do?". Such repetition was therefore excluded from the new form of questioning. Both forms of questioning are described below.

#### **Study B: traditional questioning:**

- which one could only very clever children do?
- which one would you have to be really clever to do?
- how can you tell you'd have to be really clever to do that one?

#### **Study B: new questioning:**

- which jigsaw can nearly all the children do?"
- if lots of children can do this jigsaw, do you think it is hard jigsaw or an easy one?
- which jigsaw can hardly any children do?
- if hardly any children can do this jigsaw, do you think it is a hard jigsaw or an easy one?
- so which is the hard jigsaw and which it the easy one?



- which one could only very clever children do?
- how can you tell you'd have to be really clever to do that one?

Scoring was the same as in study A with children either being scored as having full understanding (both questions correct) or none (only one or none correct).

## Results

**Table 6.2. Number of correct responses to traditional and new questioning (study B) of normative concept of difficulty and ability.**

age group	traditional questioning	new questioning
5 year olds (n=50)	1/25	1/25
6 year olds (n=50)	2/25	8/25

Note: values indicate numbers of children giving correct responses

For the 5 year olds, only one child demonstrated full understanding of normative concept using the traditional questioning and another with the new questioning. For the 6 year olds there was a significant difference between the groups; two demonstrated full understanding using the traditional questioning whilst eight demonstrated it using the new questioning ( $\chi^2(1)=4.5$ ,  $p<0.05$ ).

## Discussion

While it was disappointing that there was no improvement in the results from the 5 year olds, it may have been that these young children were still too young to differentiate difficulty from ability. Despite the scaffolding offered to them, this may still have been outside their zone of proximal development and so was not appropriate for them. The results from the 6 year olds suggest that the scaffolding involved in the new form of questioning allowed these children to indicate that they had a greater

understanding of the differentiation of difficulty and ability than had previously been assumed.

While this questioning improved responses from 6 year olds, it still was not certain whether these responses were truly reflecting children's understanding and whether or not the questioning was still confusing for the youngest children. One way of checking this was to ask children what is meant by "clever" and to examine whether those children who correctly answered the new normative concept questions were the same children who gave a normative explanation for "clever".

## **Study C**

### **Introduction**

The aim of this study was to investigate whether those children who correctly identified the normatively most difficult jigsaw would also define "clever" in normative terms. The hypothesis was that children who did not identify the most normatively difficult jigsaw should not be able to offer an explanation for "clever" in normative terms.

### **Method**

#### ***Participants***

Data were obtained from children who were involved in two other studies (to be described later) investigating children's understanding of learning disability. Data from study IV included 78 4-6 year olds from two schools (the younger group). Data from study V included 59 6-9 year olds from two schools (the older group).

### ***Procedure***

Children were seen sequentially from the class register and were all interviewed using the same procedure.

### ***Materials***

Children were interviewed with the new form of questioning of normative concept of difficulty and ability as described in study B. Following this they were simply asked: “what does clever mean?”. Their responses were examined to see whether they referred to a relationship between children in their explanations of “clever” (e.g. “can do more things than others”, “brainier than other children”). Those who identified that clever children could do the jigsaw which was completed by the least children (and so had attained the normative concept) were compared with those who offered a normative definition for “clever”.

### **Results**

For the younger group of children there was no significant difference between the two schools in the numbers of children identifying the normatively most difficult jigsaw and in the numbers of children giving an explanation for “clever” which referred to others. In fact the total number of children identifying the normatively most difficult jigsaw was very low, but not surprising considering that these children were only in their first term of the school year and so the majority were only 4 or 5 years old. The results from these two schools will therefore be combined.

Amongst the older group of children, whilst there were significantly more children from one school who identified the normatively most difficult jigsaw, there was no

significant difference between the schools in the numbers of children giving an explanation for “clever” in normative terms, and so the results from these two schools will also be combined.

**Table 6.3. Younger group (n=78): identification of normatively most difficult jigsaw and normative explanation for “clever”.**

		identification of most difficult jigsaw	
Normative		+	-
explanation	+	0	5
for “clever”	-	5	68

Note: values are numbers of children showing (+) or not showing (-) mastery

**Table 6.4. Older group (n=59): identification of normatively most difficult jigsaw and normative explanation for “clever”.**

		identification of most difficult jigsaw	
Normative		+	-
explanation	+	7	6
for “clever”	-	21	25

Note: values are numbers of children showing (+) or not showing (-) mastery

In table 6.3, there were five children who identified the normatively most difficult jigsaw, though none of these gave an explanation for “clever” in normative terms. On the other hand, there were five children who had not identified this jigsaw, yet they were still able to define “clever” in normative terms.

In table 6.4, there were 28 children who identified the normatively most difficult jigsaw, yet only 7 of these gave an explanation for “clever” in normative terms. This

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time there were a further 6 children who had not recognised the normatively most difficult jigsaw, but were still able to define “clever” in normative terms.

Combining the results from the two studies, 33 children identified the normatively most difficult jigsaw and 7 of these also explained “clever” in normative terms. On the other hand, a further 11 children who had not identified this jigsaw, were still able to define “clever” in normative terms.

## **Discussion**

The high number of children who identified the normatively most difficult jigsaw, yet did not define “clever” in normative terms, could be explained by the way in which this latter task was presented and results were reported. Children were asked to define “clever”, no prompts were provided, and children’s first responses were accepted. The question came at the end of a long interview and so it was considered inappropriate to keep pushing children on a particular question when they may have been starting to tire. It is conceivable that this figure is an underestimate and that with further prompting, more of this group would have been able to offer normative explanations for “clever”. In addition, it was suspected that a number of children who had identified the normatively most difficult jigsaw had made a guess, and so the number of children in this group may have been an overestimate. Therefore the figures in these two groups may have been more similar.

On the other hand, and of more interest, were the number of children giving normative responses in their definitions of “clever” when previously they had not been able to identify the normatively most difficult jigsaw. For reasons mentioned

earlier, the numbers defining “clever” in normative terms may have been an underestimate. This suggests that even with the new form of questioning, while it helps more younger children to indicate that they understand the normative concept of difficulty and ability, there still are some others who are able to explain in their own words what it means to be clever, but remain confused by this newer questioning of normative concept. This indicates that methods of assessing normative concepts of difficulty and ability still need to be improved, particularly with younger children.

Clearly there are some limitations with these studies. Assumptions were made that the procedure used in study A was confusing for the children. It could be argued that it was the concept, and not the procedure, which was confusing. Secondly, the numbers of children achieving the normative concept in study B with the new form of questioning was small. This makes this new method less impressive. Finally, no inter-rater reliability was used in coding normative definitions of “clever” in study C which reduces the reliability of these findings. However, since this new method did identify more young children who had achieved the normative concept of difficulty and ability, the studies which follow will continue to use the method developed here.

## **CHAPTER 7**

### **DEVELOPMENT OF METHODOLOGY II:**

### **INTERVIEW, QUESTIONNAIRE AND CATEGORISATION OF RESPONSES**

#### **Introduction**

After reviewing the methodologies used in other studies with young children, one aim in studies II to IV was to develop a methodology which might replicate in an experimental setting the hypotheses which arose from previous research examining children's understanding of disability (Hames, 1997, 1998). It had been hypothesised that children can display an earlier than expected understanding of learning disability and that contact with learning disability would lead to an even earlier understanding of this abstract concept. The methodology which was developed was based on the design used by Nicholls (1978) in his study of children's understanding of intelligence. He assessed children's responses after they had watched videos of pairs of children exhibiting different degrees of effort while completing maths problems. Sometimes the children on the videos achieved the same scores to the maths problems and sometimes the child who did not work so hard obtained the higher score. He then asked which child was the cleverer. Presuming that intelligence is a combination of both ability and effort, Nicholls assessed young children's capacity to differentiate ability from effort. On the videos he chose to show only children who were displaying different degrees of effort, arguing that it is not as easy to show different degrees of ability. The experimental design used in studies II to IV set out to investigate the possibility of using video to illustrate different degrees of ability. Observing children have been shown videos of children who do and do not have

learning disabilities and the observing children have been questioned about the disparity between the two children's performances.

### **Pilot stage**

#### ***Development of video***

The initial video which was made lasted for 10 minutes and showed a child with a learning disability attempting some tasks, including: counting his fingers, building a tower of cups, and completing various inset boards. This was shown to six children, aged 5 and 6 years. The video was too long for the children to maintain concentration and the inset boards were not clear enough for them to see. Most salient for the children were the videoed child's language and attempts to build the tower of cups. Therefore a further video was made which was shorter and concentrated on verbal tasks (asking the child to say his/her name, school, and to count his/her fingers) and one motor task (building the tower of cups). The importance of considering young children's concentration levels when developing a methodology has already been mentioned in chapter 5 (Miller, Holmes, Gitten and Danbury, 1997; Ashcermann, Dannenberg and Schulz, 1998).

Four video sequences were eventually produced: two 6 year old boys and two 6 year old girls, of whom one boy and girl had severe learning disabilities. These were compiled into a final research video which lasted just under 5 minutes and showed a 6 year old boy/girl completing the verbal and motor tasks (approximately 2 minutes) followed by another 6 year old boy/girl with severe learning disabilities attempting, but failing, to complete the same tasks (less than 3 minutes). The two disabled children who were depicted in the videos were considered to be similarly disabled by



their teacher. On assessment they obtained very similar scores on the Behaviour Assessment Battery (Kiernan & Jones, 1982).

The aim of the research was to concentrate particularly on children of 6 and under who traditionally would not be expected to have reached the stage of psychological understanding of ability and disability. It was therefore decided that 6 year old children would be used on the video so that children would be watching a child who was similar but “bigger” or “as big as” them, yet doing less than them. However, since there were some 7 year olds in the study who subsequently explained the videoed child’s behaviour as due to “s/he can’t do it because s/he’s not as old as me”, it may have been better to have used 7 year olds on the video.

Two videos were made (a non-disabled boy followed by a boy with a learning disability, and a non-disabled girl followed by a girl with a learning disability) so that children could watch a video of others who were the same gender as themselves. As previous research has demonstrated that children are more likely to identify with the same gender child as themselves (Hartup, 1976; Maccoby, 1988), it was hoped that greater identification would lead to heightened awareness of what the videoed child could and could not do. Children who were siblings of children with disabilities could have been shown a video of children who were the same gender as themselves or the same gender as their disabled brother and sister. In order to keep consistency between experiments and also because it was felt that the observing children would initially be more likely to identify the videoed child with themselves rather than with their brother or sister, the children in all studies were shown videos of children who were the same gender as themselves.

Use of one video meant that some children were watching a child who was “as big as” them, some were watching a child who was “bigger”. Some were watching a child who was the same age as their own disabled or non-disabled sibling, some were watching a child who was a different age. This may have differentially influenced some children’s ability to identify with the child on the video or identify him or her with a brother or sister. However it would have been practically very difficult to have made different videos for each age group and each sex which showed exactly the same-ability child. It was therefore decided that the same two videos would be shown to all the children.

### ***Validation of video***

In order to validate the appropriateness of the videos, they were shown to a group of 15 adults (workers in an engineering firm) to ensure that adults could identify that there was a difference between the pairs of children, that the second child on each video was disabled and that the boy and the girl were considered to be similarly disabled. All of the adults recognised that the second child did not complete the tasks and all gave explanations related to the child’s disability. The reasons given for the girl’s and the boy’s difficulties were sufficiently similar for it to be assumed that both children were considered to be similarly disabled. Below are some of the responses given by adults:

- Her counting and co-ordination did not come together. Lack of interest. Could not focus attention.
- He could not relate counting to counting on his fingers.

would be any difference between the groups in the extent to which they thought a disabled child would be socially excluded.

Secondly, the traditional assessment of the normative concept ability was added to assess whether contact with disability and understanding of disability was related to development of the normative concept of ability.

### ***Results***

Once again there were some differences between the groups in understanding of disability, with the control children performing less well. In addition, one child who was a control but had contact with a child with special needs in his class, identified that the child on the video was like the child in his class and recognised that such a child could be socially excluded. None of the children was able to correctly answer the questions on normative concept of ability. However, one 5 year old incorrectly answered the questions, but then on hearing an older child explain the correct answer, was subsequently able to explain this appropriately and in his own words.

### ***Discussion***

It was decided that further work on adapting the traditional form of assessing normative concept of ability was needed (as described in the previous chapter) and this improved method was incorporated into the final version of the questionnaire which is described below.

## **The interview**

The interview began with a warm-up period which helped the child to develop rapport with the experimenter (Gordon, Schroeder, Ornstein and Baker-Ward, 1995). In this period, children were allowed to play with the tower of cups and inset boards. The formal interview was in four sections: video and questions, social acceptance and normative concept of ability (see appendix D) followed by a vocabulary test.

### ***The interview i: video***

After being introduced to the video and shown drawings of the children who were depicted in the video, the observing children were asked to watch the video carefully and look for all the differences between the videoed children. This mention of differences was introduced because of one child in the piloting stage who, in a possible effort to appeal to the author, had insisted that both children were exactly the same. While watching the non-disabled child, the video was stopped twice at the appropriate moments and the observing child was asked:

- “did s/he count all his/her fingers, up to 10?”
- “did s/he build a proper tower using all the cups?”.

The video was similarly stopped twice while showing the disabled child and the same questions were asked. This was to ensure that the observing children maintained concentration throughout the video, as some of the youngest children had still found 4 to 5 minutes sustained concentration too long during the piloting stage. These questions may well have been a hint to the observing children about the differences

which were being looked for, but were felt to be necessary in order to ensure concentration.

The children were then asked to identify the named (disabled) child from the drawings to ensure that they remembered the correct child and questions were asked about this child's abilities. The responses were written down verbatim. As before, children were asked:

- “did ... count all his/her fingers, up to 10?”
- if not, “why not?”
- “Did ... build a proper tower using all the cups?”
- if not, “why not?”

If children said that the videoed child had counted her fingers or built a tower (which was incorrect) they were given another opportunity to view the appropriate part of the video. If they repeated these answers again then the response was coded “yes”. (This repeated viewing of the video occurred in studies II and III which included younger children who may have had more problems with concentration and so it was particularly important to ensure that children had understood the material. Children in study IV only saw the video once). Children were then asked:

- “could ... build a tower with these cups?”
- “why/why not?”
- “could you build a tower with these cups?”
- “how come you can and he/she can't?”

- “could ... do this jigsaw, this jigsaw?”
- “why/ why not?”
- “did you do these jigsaws?”
- “how come you can and he/she can’t?”

The first question was to assess whether the observing child could recognise that the inability to build a tower at one time would extend to another tower of cups at another time. They were asked about the videoed child’s ability to complete two inset jigsaws (the first jigsaw being much easier than the second), in order to assess whether this inability to build a tower would extend to other activities. The jigsaws were reduced from three to two to make it easier for children to distinguish the easiest from the hardest and to aid data analysis. As all the children had already completed the tower and jigsaws themselves during the warm-up period; if they thought that the videoed child would not be able to do these activities, they were asked to explain why. At the end of the interview the children were asked to identify the easiest and hardest inset jigsaws to ensure that they could distinguish between them.

- “is .... like a 6 year old or like another number?”

This next question was introduced to offer children who had difficulty with the “why?” questions an opportunity to say that the videoed child was not behaving like a similarly aged child, but rather like a younger child. While the majority of children attempted to estimate the age of the child on the video, their responses were divided into three categories: “<6 years”, “6 years” and “>6 years”. This was because children’s verbal estimations of age have been found to be poor (while their verbal

interactions with disabled others are much more appropriate to children's actual developmental levels (Lewis, 1988). Nursery children were simply asked "Is ... like a big boy/girl?".

- "is ... like a girl/boy you know?"

This final question assessed whether the siblings of disabled children recognised the similarities in intellectual ability between their own brother or sister and the child on the video. In addition this question was used as an additional check to ensure that control children involved in the study did not mention anyone with disabilities.

### ***The interview ii: social acceptance***

The social acceptance questions were taken from Harter and Pike's (1984) perceived competence and social acceptance scale. Items 2, 6, 10, 14, 18 and 22 were selected. These items concentrate particularly on children's friendships.

- "this girl/boy doesn't have very many friends to play with. This girl/boy has lots of friends to play with. Which of these girls/boys is most like ...?"
- "lots of children share their toys with this girl/boy. A few children share their toys with this girl/boy. Which of these girls/ boys is most like ...?"
- "this girl/boy doesn't have many friends to play games with. This girl/boy has lots of friends to play games with. Which of these girls/boys is most like ...?"
- "this girl/boy has lots of friends to play on the playground. This girl/boy doesn't have very many friends to play with on the playground. Which of these girls/boys is most like ...?"

- “this girl/boy gets lonely sometimes because the other children don’t ask her/him to play. This girl/boy usually gets asked to play with other children. Which of these girls/boys is most like ...?”
- “a lot of children want to sit next to this girl/boy. A few children want to sit next to this girl/boy. Which of these girls/boys is most like ...?”

The wording was altered from the original so that rather than asking “which one is like you?” children were asked “which one is like ...?” and the picture of the disabled child was shown as a reminder. It was recognised that by only asking about the disabled child and his or her perceived friendships, no comparative data was available on children’s opinions of the non-disabled child’s friendships.

The six social acceptance questions were scored by giving 1 point for a response which indicated few friendships and 2 points for an answer which indicated lots of friends. A final score of 6 or 7 indicated that the disabled child was considered to have few friends whereas a score of 11 or 12 indicated many friends. In piloting this procedure it appeared that children who were consistent in their responses understood the purpose of the questionnaire whereas many of the children who were inconsistent and who ended up with score of between 8 and 10 (usually the younger children) did not really understand the underlying concept which was being addressed. (There were some children, for example, who always chose either the picture on the right, or the left, and so subsequently gained the intermediate score of nine). This assumption will be returned to in chapter 12. Any children who gained a total score of 6 or 7, indicating that they thought that the disabled child would have very few friends, were subsequently asked to complete the stigma questions on themselves to ensure that



they did not also give themselves a similarly low score. The scores from children who gained the same low score for themselves were excluded from the results as it was not clear whether the answers which they gave for the disabled child related to that child or were a reflection of their own low self-esteem.

### ***The interview iii: normative concept of ability***

Normative concept of ability was assessed using the new form of questioning which has been described in the previous chapter. After being shown four boxes which were said to contain different jigsaws and which could be completed by different numbers of children, they were asked:

- “which jigsaw can nearly all the girls/boys do?”
- “if lots of girls/boys can do this jigsaw, do you think it is a hard jigsaw or an easy one?”
- “which jigsaw can only one girl/boy do?”
- “if only one girl/boy can do this jigsaw, do you think it is a hard jigsaw or an easy one?”
- “so which is the hard jigsaw?”
- “which is the easy jigsaw?”
- “which one can only very clever girls/boys do?”
- “how can you tell you’d have to be very clever to do that one?”

At the start of study II, the possibility of using reading rather than jigsaws as the normative task was considered. This was because reading could be considered a more salient task for school children than jigsaws. Numerous studies have shown how

children are much more discriminating and show greater ability when presented with tasks which are more salient for them (e.g. Cain, Heyman and Walker, 1997; Yussen and Kane, 1983). Whilst this could have been appropriate for the older children who were at school, many of the reception children were not yet readers and none of the nursery-aged children could read. Jigsaws were therefore used for all children.

After assessing children's normative concept of ability with jigsaws, they were then asked:

- "which jigsaw do you think you can do?"
- "why?"
- "which jigsaw do you think (*the disabled child*) can do?"
- "why?"
- "which jigsaw do you think (*the non-disabled child*) can do?"
- "why?"
- "why can they do different jigsaws?"

This was to assess whether they thought there would be any similarities between their own performance and that of the non-disabled child and whether they thought there would be any differences between the performances of the disabled and non-disabled children. Children were asked to explain their choices and if they made different choices, their reasons for these. These questions acted as a further check on children's awareness of the similarities between themselves and the non-disabled child and the differences between the non-disabled and disabled children.

### ***The interview iv: vocabulary scale***

The British Picture Vocabulary Scale (Dunn, Dunn and Whetton, 1982) was used as an assessment of vocabulary age. It was used as one of the measures for matching siblings and their controls. This scale is an individually administered test of receptive (hearing) vocabulary, standardised on a representative British sample of children. While not intended as being a test of general intelligence, vocabulary is considered to be one of the most important contributors to measures of intelligence (Elliot, 1982).

The BPVS is a particularly appropriate test for use with very young children, as respondents are not expected to be able to read or write and their responses can be purely gestural. The wide age range of the BPVS also reduced the possibility of either floor or ceiling effects with the children involved in the studies.

The BPVS comes in two forms: short and long. In study II, since many of the children were very young and so were not expected to complete much of either form, the short form would not have been much quicker to administer and so the long form was completed. With the long form, the standard error of measurement covers a narrower age band and so this resulted in stricter criteria for matching ability levels. In the other studies, where children's mean results between groups were to be compared, the short form was administered.

### **Coding of responses to video section of interview**

While approximately half of the questions in this section of the interview could be analysed quantitatively, the rest required qualitative analysis. Although categorisation of the qualitative responses will be described later, its development will be introduced

here. Two coders who were naive to the hypotheses of the studies were involved at this stage. These coders had viewed the videos themselves, knew that children were being asked to give their explanations of why the second child on the video did not complete tasks, and had then gathered data for the study of gender differences (development of methodology IV). They were therefore knowledgeable about the types of responses which were given by the children. After a discussion with the experimenter about how children's explanations fell into various categories (task difficulty and terms for disability were given as examples), the two coders were asked to develop a categorisation of responses together (from the responses given in study II) and then separately from each other, to code responses given by all the children in study II. Naive coders were involved as the experimenter was aware of the possibility of bias if she were involved in developing the coding. Inter-rater reliability for coding was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100. One hundred percent of questionnaires from study II were assessed for inter-rater reliability by the two coders and the mean level of agreement was 73%.

Disputes in coding were discussed with the experimenter and a clearer categorisation was then devised by the experimenter. This involved developing a new category called "associations", incorporating "don't know" into the miscellaneous category, and developing many more examples for the description of the categorisation. The naive coders and the experimenter then rated all of the questionnaires which had been completed in the study of gender differences (development of methodology IV). This time the mean level of inter-rater reliability between the three coders reached 84%.

Disputes in coding were discussed once again, and some categories clarified by adding further examples. As a final check on reliability, all the responses from the children in study II were re-rated by the experimenter and another naive coder using the amended categorisation of responses. The mean level of inter-rater reliability now reached 82%.

### **Categorisation of responses**

The categorisation of children's explanations are described below. The first five categories represent increasingly sophisticated explanations for why a task is or is not completed. The remaining categories bear no apparent relation to each other.

As became clear during the development of this work, this is a categorisation of children's explanations of ability as well as lack of ability. While children were asked to give their explanations for why only the disabled child could not complete tasks, some children either compared the disabled with the non-disabled child and described the differences between the two, or referred to their own ability to complete tasks. They then started talking about ability rather than disability. As children were trying to use these explanations to explain the disabled child's lack of ability, it was felt that these explanations were not inappropriate and so should be incorporated into the overall classification.

A summary table of the categories is provided below, followed by a fuller description of each category with examples of statements which fall into that category distinguished from similar statements which fall into other categories.

<b>Table 7.1 CATEGORIES - children's explanations for ability and lack of ability</b>	
1.	Description of appropriate/inappropriate task response
2.	Task specific ability/lack of ability
3.	Associations
4.	General description of ability/lack of ability
5.	Mental processes
6.	Attention
7.	Motivation
8.	Experience
9.	Task difficulty
10.	Age
11.	Behaviour
12.	Miscellaneous

#### **CATEGORIES - children's explanations for ability and lack of ability**

##### **1. Description of appropriate/inappropriate task response**

When asked why a task is or is not completed, the responding child gives a description of what happened or what could have happened (not just a description of the components of the task, which would be coded 12). There is no reference to ability. So the child might describe the subject as doing something incorrectly: **“she put the big one on top of the little one”**; might describe the outcome: **“it fell down”**; or that something different about the child's task explained the different outcome: **“she was building a different tower”**. While **“she talks differently”** is coded 1, **“she didn't look”** refers to attention and so is coded 6.

## 2. Task-specific ability/lack of ability

The child refers to ability, but only to one specific ability or lack of ability which has no bearing on any other abilities or any other tasks. The child might just say **“she can’t”, “she doesn’t know” or “she has no idea”** . The child could expand this further by saying **“she doesn’t know how to do it/ what to do”**. The child might also refer more specifically to an ability or lack of ability in a particular area: **“I’m good at jigsaws”, “she can’t talk properly”, “she can’t see properly”, or “she can only count to five”**.

### EXAMPLES

2 - <b>“she can’t do it properly”</b>	v	1 - <b>“she didn’t do it properly”</b>
2 - <b>“she can’t talk properly</b>	v	1 - <b>“she talks differently”</b>

## 3. Associations

The child explains that doing one thing is related to doing another, or not doing one thing is related to not doing another. So when asked why the child on the video did not build a tower she might respond: **“because she did not count her fingers”** or **“she can not talk properly”**. The child might also notice a similarity between two tasks: **“she won’t build that tower because she didn’t build the one on the video”** or anticipates and emphasises exactly the same outcome for two tasks using **“same”** or **“ again”**: **“she’ll do the same again”**. The child might also notice a similarity between two people which is relevant to ability: **“she’s the same as me”** or **“she’s the same as the other child on the video”**. If the child comments on difference, this

is along the same dimension: **“he knows how to build better than him”** or **“those are easier than the other ones”**.

## EXAMPLES

3 - <b>“she’ll knock them down again”</b> v	1- <b>“she’ll knock them down”</b>  (repeated)
3 - <b>“they’re the same bricks”</b> v	12 - <b>“they’re different bricks”</b>
3 - <b>“that one’s easier/the easiest”</b> v	12 - <b>“that one’s different”</b>
3 - <b>“I can build better than her”</b> v	2 - <b>“I can build, she can’t”</b>

## 4. General description of ability/lack of ability

The child holds some notion of underlying ability or lack of ability which has implications for a number of tasks. However there are no references to the mental processes which are the cause of this ability or lack of ability. So the child may give a sophisticated term such as: **“disabled”**, **“handicapped”** or **“autistic”** (without further explanation) or may give his or her own simpler description such as: **“clever”**, **“clumsy”**, **“uncoordinated”**, **“muddled”** or **“has problems”**. If there is a reference to the completion or non-completion of tasks, it refers to much more than one or two things: **“can’t do stuff”**, **“can’t do anything”**, **“doesn’t know how to do things properly”** or **“can only do easy things**. Any reference to similarity between two people makes reference to general abilities: **“better than her”** or **“can’t do as much as me”**. While there may be mention of the brain, there is no mention of mental processes: **“brain not working properly”**. A more knowledgeable child may also refer to **“low IQ”** or **“low mental age”**.



## EXAMPLES

4 - "not clever"	v	2 - "not clever at building"
4 - "he's slow"	v	1 - "he did it slow"
4 - "she was all muddled up"	v	1 - "the cups were all muddled up"
4 - "uncoordinated"	v	2 - "trouble co-ordinating shapes"
4 - "lacked skills"	v	2 - "lacked communication skills"
4 - "better than her"	v	3 - "same as her"
	v	12 - "not the same/different to her"
	v	3 - "can build better than her"
4 - "can't do anything"	v	1 - "did everything wrong"

## 5. Mental processes

The child refers to underlying mental processes such as: **"didn't understand/realise"**, **"not thinking/learning"** or **"forgot"**. Or there may be reference to more specific processes which involve cognitive abilities: **"didn't grasp the concept"**, **"limited recognition"** or **"can't work things out"**.

## EXAMPLES

5 - "couldn't see that the shapes fitted together"	v	2 - "couldn't see the shapes"
5 - "didn't understand"	v	2 - "didn't know"

## **6. Attention**

The child says things like: **“didn’t listen”, “didn’t concentrate”, “not looking”, “not paying attention”, “distracted”, “no patience”** or **“problems with focusing”**.

The child might also refer to themselves: **“I was looking”, “I was taking my time”** or **“I was being careful”** (as long as this is a relevant explanation for why a task was or was not completed)

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### **EXAMPLES**

<b>6 - “he didn’t look at the shapes”</b>	<b>v</b>	<b>2 - “he couldn’t see the shapes”</b>
<b>6 - “not looking”</b>	<b>v</b>	<b>2 - “can’t see properly”</b>
<b>6 - “problems with focusing”</b>	<b>v</b>	<b>2 - “unable to focus”</b>

## **7. Motivation**

Here the child refers to effort or the lack of it rather than interest or lack of interest: **“not trying/trying”, “doesn’t want to”, “not interested”, “didn’t care”** or **“gave up easily”**.

## **8. Experience**

The child recognises the importance of either prior direct experience: **“hasn’t seen it before”, “hasn’t practised”** or **“just learning”**, or learning from others: **“she hasn’t been taught by her teachers”** or **“she hasn’t been shown”**. The child may also

make an indirect reference to prior experience: **“she’s got one at home”**. Any mention of learning refers to whether or not learning has been experienced rather than an ability or inability to learn.

## EXAMPLES

<b>8 - “just learning/ learnt nothing”</b>	<b>v</b>	<b>5 - “not learning/can’t learn”</b>
<b>8 - “learnt a lot”</b>	<b>v</b>	<b>4 - “clever”</b>

## 9. Task difficulty

The child either refers to the ease or difficulty of one particular task: **“too hard”** or **“only do the easy one”** or to the ease or difficulty for the child of this particular task: **“too hard for her”** or **“finds it difficult”**. While **“this one’s got too many”** is coded 9, **“this one’s got loads of shapes”** is insufficient as it is not clear whether “loads of shapes” makes a task easier or harder, and so has to be coded 12. Similarly, **“only one shape”** does not make it clear whether the task is hard or easy (so coded 12). Reference to an overall ability or inability to do hard or easy tasks is coded 4.

## EXAMPLES

<b>9 - “only do the easy one”</b>	<b>v</b>	<b>2 - “can only do one”</b>
	<b>v</b>	<b>3 - “can only do the easier one”</b>
	<b>v</b>	<b>4 - “can only do easy things”</b>
<b>9 - “only one easy shape”</b>	<b>v</b>	<b>12 - “only one shape”</b>

9 - "these cups are too small"	v	12 - "these cups are smaller"
9 - "this one's got more"	v	4 - "can do more things"

## 10. Age

The child makes appropriate reference to age (or sometimes size) as a way of explaining, or questioning, behaviour: "she's littler", "like a baby" "she's younger than me" or "she's a big girl but she can't count". When told the age of the subject, the child may emphasise that the subject must be at the younger end of that age: "she's just six" or "only six, not six and a half".

### EXAMPLES

10 - "older than her"	v	4 - "better than her"
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## 11. Behaviour

The child makes reference to general behaviour as a way of explaining task performance without any reference to ability: "being silly", "frustrated", "too tired" or "naughty".

### EXAMPLES

11 - "being silly"	v	1 - "built it silly"
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## **12. Miscellaneous**

Includes **“don’t know”**, ambiguous comments: **“she’s a good girl”**, and comments which are irrelevant to why a task is or is not completed.

### **EXAMPLES**

<b>12 - “fingers too little”</b>	<b>v</b>	<b>1 - “put the little cup underneath”</b>
<b>12 - “I don’t know”</b>	<b>v</b>	<b>2 - “he didn’t know”</b>
<b>12 - “only one shape”</b>	<b>v</b>	<b>1 - “put one shape in the hole”</b>
<b>12 - “everyone can do it”</b>	<b>v</b>	<b>9 - “it’s easy”</b>

## **CHAPTER 8**

### **DEVELOPMENT OF METHODOLOGY III:**

#### **DEFINITION OF A MATURE UNDERSTANDING OF LEARNING DISABILITY**

##### **Introduction**

The need for a mature definition was identified during categorisation of children's responses for studies II, III and IV. While it was possible to look at the developing sophistication in responses from children to the video, no information was available on what level of responding would constitute a complete understanding of learning disability. So although it was possible to gather information on how children begin to explain this construct, no information was available on further stages in their development. This information could be gathered by obtaining responses to the video from adults, assuming that they have a full understanding of this construct.

The other benefit of this investigation was that it served as a check on the comparability of the boy's and girl's videos. During the piloting of the interview schedule, the videos used in the experimental design were shown to a small group of adults who had identified that the second child in each pair was disabled and had given explanations for the second child's disability. The reasons given for the boy's and the girl's difficulties were similar and so it was concluded that both children were similarly disabled. Once a more objective categorisation was devised, it became possible to systematically examine adults' responses to both videos to ensure that adults assessed both children as being similarly disabled.

## Study A

### Method

The aim of this initial investigation was to see if experts in the field of learning disability could agree on the defining aspects of learning disability. Ten clinical psychologists who work with people with learning disabilities were contacted by phone and sent details of the research and a copy of the categorisation of children's responses. This was an earlier version of the categorisation described in the previous chapter. Psychologists were asked if they could rank the categories in order of how accurately they thought children were explaining why a child with a learning disability could not do things. Five psychologists responded.

The categorisation used in this study is described below:

1. use of ability words such as “know” and “can’t”, but in a **task-specific** way, either “she doesn’t know how to do that one” or “she can’t do it”.
2. some notion of underlying ability by making **associations**; “she didn’t do that so she won’t do this”.
3. **general descriptions**, without further elaboration; “she’s not clever”, “not good at it”, “disabled”.
4. reference to ability by describing **underlying mental processes** such as; “she didn’t understand”, “not thinking”, “not learning”.
5. reference to **lack of concentration**; “she didn’t listen”, “forgot”, “not trying”.
6. importance of **experience** by saying things like; “she hasn’t seen it before”, “hasn’t been shown”, “hasn’t been taught”.
7. description of **task difficulty**; “its too hard”, “can only do the easy one”.

8. note of the **discrepancy between age and behaviour**; “she’s like a baby”, “like a younger child”.
9. **behavioural descriptions**; “being silly”, “too tired”.
10. reference to **preference**; “she didn’t like it”.
11. ability is related to **doing more**; “can’t do as much as me”, “can’t do anything”.
12. reference to **difference** without further explanation; “she’s different to me”.
13. recognition of **dependence**; “loads of people will help her”.

## Results and discussion

The following table lists individual psychologists’ responses, from most important (1) to least important (13).

**Table 8.1. Five psychologists’ ratings of the importance of 13 categories in defining learning disability (from most important=1)**

Task-specific	10	7.5	5	6.5	10.5
Associations	9	5	7	3	9
General description	5.5	7.5	6	8	5.5
Mental processes	1	1.5	1	1	1
Concentration	3	3	8	6.5	3
Experience	4	4	2	2	4
Task difficulty	7.5	9.5	4	5	7.5
Age/behaviour	2	1.5	11	4	2
Beh. description	12.5	11	12	12.5	12.5
Preference	12.5	6	3	12.5	12.5
Doing more	7.5	9.5	13	9.5	7.5
Difference	11	13	10	11	11
Dependence	5.5	12	9	9.5	5.5

While these results suggest that a deficit in mental processes constitutes the most advanced level of understanding of learning disability, there was no further agreement



on the most defining aspects. Bearing in mind the difficulties there have been in the past in getting psychologists to agree on the definition of intelligence (Resnick, 1976), maybe this finding is not so surprising. An alternative approach with adults was considered.

## **Study B**

### **Method**

The aim of this study was to show both of the children's videos to a group of adults in order to identify which categories of responses they used most often in describing the disabled children's difficulties, and whether they used the same responses in describing the disabled girl and the disabled boy.

This study involved two groups of undergraduate psychology students. Thirty one students were involved in one group and 15 in the other. It was explained that they were being asked to help in the evaluation of another experiment and further details of the experiment would be available to them at the end of their involvement.

The design involved one video being shown to the participants, after which they wrote responses to similar questions as had been used with the children (not the social acceptance and normative concept questions). Participants were then shown the other video and asked to respond to the same questions. The questionnaire used by the adults is illustrated in appendix E. One group (31 adults) watched the boys' video first, girls' video second (B1/G2); the other watched the girls' video first, boys' video second (G1/B2). This design allowed comparison to be made between explanations given for the boy's and the girl's disabilities, between the video which was seen first

and that which was seen second, and also assessed whether there was any differential effect of the gender of the first video on responses to the first and the second video.

Finally, the responses from the adults were combined and analysed to investigate the responses which most adults gave when explaining the difficulties portrayed by the disabled child. The results will first examine whether any differences were found between adults' responses to the videos before looking at adults' explanations for disability in more detail.

### ***Coding***

The experimenter and one of the coders who had previously been involved in devising the coding rated 67% of the adult responses from study B and reached a mean level of inter-rater reliability of 76%. As this was considered to be too low, training was carried out with a new naive coder on categorisation of adults' responses and the same 67% of adult responses were recoded, now reaching a mean level of inter-rater reliability of 86%.

### **Results - between adults' responses**

Looking both at those questions which permitted quantifiable analysis and those which had to be categorised, these were analysed to see if there were any differences between adults' responses to both boys' (B1/B2) and both girls' videos (G1/G2); between the videos which were shown first (B1/G1) and the videos which were shown second (B2/G2); between seeing the boys' video first (B1) and the boys' video second (B2); and seeing the girls' video first (G1) and the girls' video second (G2).

The following tables compare combined responses:

- the boy's video (B1/B2) with the girl's video (G1/G2)
- the first video (B1/G1) with the second video (B2/G2)
- the boys' video first (B1) with the boys' video second (B2)
- the girls' video first (G1) with the girls' video second (G2)

Tables 8.2, 8.3 and 8.4 look at differences in responses to the following questions:

- ***Q.3 “Could she build a tower with the cups at the front?”***
- ***Q.4+5 “Could she do jigsaw 1... jigsaw 2?”***
- ***Q.6 “Is she like a six year old or like another age?”***

Responses to question 3 were either “no” (N) or “yes” (Y) . One response was missing. Responses to questions 4+5 were either “yes” to the first jigsaw and “no” to the second (1), “no” to both jigsaws (2) or “yes” to both jigsaws (3). Two responses were missing. Responses to Q.6 are reported as either less than 6 years (<6), or 6 years or more (>6). One response was missing.

**Table 8.2. Responses to Q.3 as percentages: “Could she build a tower with the cups at the front?”**

response	B1/B2 (n=46)	G1/G2 (n=45)	B1/G1 (n=46)	B2/G2 (n=45)	B1 (n=31)	B2 (n=15)	G1 (n=15)	G2 (n=30)
Q.3-N	87	89	91	84	87	87	100	83
Q.3-Y	13	11	9	16	13	13	-	17

**Table 8.3. Responses to Qs.4+5 as percentages: “Could she do jigsaw 1...jigsaw 2?”**

response	B1/B2 (n=45)	G1/G2 (n=45)	B1/G1 (n=45)	B2/G2 (n=45)	B1 (n=30)	B2 (n=15)	G1 (n=15)	G2 (n=30)
Q.4+5-1	84	87	87	84	83	87	93	83
Q.4+5-2	9	4	9	4	10	7	7	3
Q. 4+5-3	7	9	4	11	7	7	-	13

**Table 8.4. Responses to Q.6 as percentages: “Is she like a six year old or like another age?”**

response	B1/B2 (n=46)	G1/G2 (n=45)	B1/G1 (n=46)	B2/G2 (n=45)	B1 (n=31)	B2 (n=15)	G1 (n=15)	G2 (n=30)
Q.6-<6	98	98	98	98	97	100	100	97
Q.6->6	2	2	2	2	3	-	-	3

Whether watching the boys’ or the girls’ video, adults’ responses were very similar. When watching the first video rather than the second, slightly more adults said that the child would not be able to complete another tower and would not be able to complete the second of the two jigsaws (saying either “yes” or “no” to the first jigsaw and “no” to the second), though these differences were not significant. There were no differences between seeing the boy video first or second. For the girl video, more adults said that the disabled girl would not be able to complete another tower on first viewing than on second, though the figures involved were too small to make this difference valid.

Table 8.5 looks at differences in responses to questions which required categorisation (the categorisation was described in chapter 7 and is detailed again in table 8.6). Responses to all the following questions have been combined resulting in every adult making more than one response.

***Q.1 “Why didn’t she (count all her fingers)?”***

***Q.2 “Why didn’t she (build a proper tower)?”***

***Q.3 “Why not (build a tower with these cups)?”***

***Q.4+5 “Why not (do jigsaw 1... jigsaw 2)?”***

**Table 8.5. Percentages of adults using categories in response to questions 1, 2, 3, 4+5.**

categories	B1/B2 (n=46)	G1/G2 (n=46)	B1/G1 (n=46)	B2/G2 (n=46)	B1 (n=31)	B2 (n=15)	G1 (n=15)	G2 (n=31)
1	74	67	67	74	81	60	40	81
2	52	44	52	44	58	40	40	45
3	26	35	28	33	29	20	27	39
4	11	9	11	9	10	13	13	7
5	54	67	63	59	55	53	80	61
6	26	28	24	30	26	27	20	32
7	20	11	15	15	19	20	7	13
8	4	4	2	7	3	7	-	7
9	63	59	59	63	61	67	53	61
10	2	2	2	2	3	-	-	3
11	-	2	-	2	-	-	-	3
12	57	50	52	54	58	53	40	55

The only trend in adults’ responses to the videos was that more adults used category 1 while watching the girls video second (25/31) than first (6/15) (Fisher’s exact two-tailed,  $p=0.16$ ).

### **Results - all adult responses**

As none of these differences in responses to the videos were significant i.e. no gender or order effects, further analysis combined all adult responses.

### ***- questions permitting quantitative analysis***

***Q.1 “Did she count all her fingers, up to ten?”***

***Q.2 “Did she build a proper tower using all the cups?”***

***Q.3 “Could she build a tower with the cups at the front?”***

***Q.4+5 “Could she do jigsaw 1... jigsaw 2?”***

***Q.6 “Is she like a six year old or like another age?”***

Ninety-eight per cent of adults’ responses indicated that the child on the video had not counted all of his or her fingers (question 2) and 99% said that the child had not built a proper tower (question 4). Eighty seven per cent said the child would not be able to build another tower (question 6). In response to question 10, 83.7% of adults said that the child would be able to complete the first jigsaw but would not be able to complete the second and a further 6.5% said that the child would not be able to complete either jigsaw. In total, 90.2% said that the disabled child could not complete the second jigsaw. Ninety eight per cent said that the disabled child on the video was like a younger child. These were therefore taken as mature responses, from participants who had a well-developed view of the disability of the children on the videos, and were used to evaluate responses from children.

***- questions requiring qualitative analysis***

***Q.1 “Why didn’t she (count all her fingers)?”***

***Q.2 “Why didn’t she (build a proper tower)?”***

***Q.3+4 “Why not (build a tower with these cups)?”***

***Q.5 “Why not (do jigsaw 1... jigsaw 2)?”***

Combining adults' responses to all of these questions and utilising the categorisation of responses developed and described earlier in chapter 7, the distribution of total responses is described in table 8.6 below. Once again, adults used more than one category in response to each video.

**Table 8.6. Adults' (n=92) use of categories to questions 1, 2, 3, 4+5.**

Category 1	Description of inappropriate task response	65 (71%)
Category 2	Task-specific lack of ability	44 (48%)
Category 3	Associations	28 (30%)
Category 4	General description of lack of ability	9 (10%)
Category 5	Mental processes	56 (61%)
Category 6	Attention	25 (27%)
Category 7	Motivation	14 (15%)
Category 8	Experience	4 (4%)
Category 9	Task difficulty	56 (61%)
Category 10	Age	2 (2%)
Category 11	Behaviour	1 (1%)
Category 12	Miscellaneous	49 (53%)

Note: N=92 as every adult responded to two videos

In response to viewing the videos, the most common explanations (used by 50% or more adults) for why the child with the learning disability could not complete tasks were:

- descriptions of what happened or what could have happened without any reference to ability (71% of adults used this category),
- mention of mental processes (61%),
- reference to the difficulty of the task or the difficulty of the task for the child (61%)
- miscellaneous comments (53%).

Categories used by between 25% and 49% of adults were:

- description of task-specific lack of ability (48%),
- associations between inability to complete one task and another (30%)
- attention problems (27%)

The least used categories were:

- motivation (15%)
- general description of lack of ability (10%)
- experience (4%)
- age (2%)
- behaviour (1%)

## **Discussion**

The aims of this study were to describe a mature definition of learning disability and to identify whether the two children on the video were considered to be similarly disabled. In relation to the second of these, apart from a slight difference in use of category 1 responses to the girl video first rather than the girl video second, responses to both videos were very similar.

In looking for a mature definition of learning disability, two assumptions were made in this study. One was that all adults would give mature definitions, and secondly that psychology students are representative of mature adults. As we know from Kohlberg's framework for the development of moral reasoning (Colby, Kohlberg, Gibbs and Lieberman, 1983; Kohlberg, 1969), not all adults are able to operate at the



most sophisticated level of moral reasoning. In this study, the fact that 61% of adults referred to mental processing in explaining the disabled child's difficulties while 71% gave an explanation of what the child did may reflect the fact that not all the respondents here were responding at the most sophisticated level possible.

As in much research which involves the use of easily available students, one has to be cautious about the generalisability of the results to all adults (Sears, 1986). It was surprising to the experimenter that more of the students did not use category 4 (general description of lack of ability). This category incorporates use of labels such as "learning disability" and "mental handicap". As a group of psychology students, they may have been taught to explain concepts rather than just use labels. It may also have been that as students, representing a younger and possibly "politically correct" group, it was not thought to be appropriate to use such labels. The results from the survey with the general public (appendix A) also showed that respondents in the 18-24 year age group were significantly less likely to use labels to explain learning disability than those who were aged 55 and over.

While an aim of this study was to investigate a mature definition of learning disability, what it has more specifically achieved has been to identify a mature definition of the difficulties experienced by the children on these videos. The proportional use of the different categories may well have been different if either a different video or even a different procedure had been used. Though the limited results from study A suggest that mental processes may still have featured as a prominent aspect.

To summarize, the findings from this study suggest that on watching either of these videos, a mature response would be to say that the disabled children would not be able to complete another tower, would not be able to complete the second of the two jigsaws and appeared to be like younger children. In explaining why these children had these difficulties, the following responses were given by more than 50% of adults: descriptions of what happened or what could have happened without any reference to ability, reference to mental processes, reference to the difficulty of the task or the difficulty of the task for the children and miscellaneous comments. While the miscellaneous category was used by over 50% of adults, this mainly incorporated ambiguous comments which, if clearer, might otherwise have been categorized as category 1 responses.

(It may be of interest to know that when the videoed children were given the other tower and the two jigsaws, they both could not complete the tower and could complete the first jigsaw successfully, but not the second.)

## **CHAPTER 9**

### **DEVELOPMENT OF METHODOLOGY IV:**

#### **EXAMINATION OF POSSIBLE GENDER DIFFERENCES**

##### **Introduction**

Analysis of the findings from the limited studies that have looked at children's understanding of ability and disability, suggest that there are no differences in understanding between the sexes. While boys may perceive their own ability to be higher (Nicholls, 1980), Nicholls and Miller (1983) found no differences between similarly-aged boys and girls who were at the normative, objective and ego-centric levels of differentiating difficulty and ability. Yussen and Kane (1983) in their study of young children's understanding of intelligence found "few meaningful sex differences" though gave little more information than this. Conant and Budoff (1983) and Hazzard (1983), in their investigations of children's conceptions of physical and mental disabilities again found no relationship between gender and awareness of disability in each age group studied. Diamond and Hestenes (1996), while reporting that pre-school girls are more likely than boys to say that they would be friendly with children with various disabilities, did not describe any further differences between girls' and boys' conceptions of disabilities.

Although the existing literature suggests no reasons for suspecting that there should be any differences between girls' and boys' understanding of learning disability, these studies have been limited in their analysis. If there are differences then this could impact upon the studies to be described later. This investigation examines whether there are any differences in responses given by girls and boys. The hypothesis is that

girls and boys will respond similarly suggesting that there are no differences in their understanding of learning disability.

Secondly, this study offered a further opportunity to check on whether the children in the videos were considered to be similarly disabled. The hypothesis is that the results will be the same as those found in the previous chapter, that there are no differences in the perceived abilities of the two children with disabilities.

Finally, as with the development of the methodology with adults, it is possible to analyse for order effects: whether there are any differences in responses to the video shown first and the video shown second; to the girls' video first and to the girls' video second; and to the boys' video first and the boys' video second. The hypothesis is that there are no effects due to the order in which videos are shown.

As the aim of this investigation is purely to ensure that there are no influences on the methodology which could be attributed to gender or to order, the method and results are reported briefly. More details on the method and analysis of results will be specified in studies II, III and IV (chapters 10, 11 and 12).

## **Method**

### ***Participants***

All the children involved in this investigation were in year two in one school. The school was in an area which had a mixed social class distribution: there was a 5.4% unemployment rate in the ward where the school was situated and 45 of the 233

children received free school meals. Twenty nine 6-7 year olds (16 girls and 13 boys) were interviewed.

### ***Procedure***

The children were interviewed by two undergraduate psychology students who were naive to the aims of the study though they knew that children were being asked to give their explanations for why the second child on the video did not complete tasks. Both interviewers had experience of working with young school-age children. They were trained in administration of the video section of the interview (appendix D) and recorded children's responses verbatim. Children were chosen at random by their class teachers and seen in a room close to their own classrooms.

Children were shown a video of the children of one gender and asked about the disabled child. They were then shown the video of the other gender children and asked the same questions. Eight girls and seven boys saw the girls' video first. The results will report on:

- differences between the girls' and boys' responses (to all videos)
- reported differences between the girls' and boys' videos
- differences between responses to the first video and to the second
- differences between responses to the girls' video first and the girls' video second and to the boys' video first and the boys' video second.

## ***Analysis***

In analysing differences in responses, non-parametric statistics with independent samples (chi-squared) have been used.

## **Results**

Table 9.1 indicates the chronological and vocabulary ages for girls and boys. The differences in chronological and vocabulary ages are not significantly different.

**Table 9.1. Chronological and vocabulary ages in months (means, ranges and standard deviations)**

respondents	chronological ages			vocabulary ages		
	mean	range	sd	mean	range	sd
girls (n=16)	87	82-93	2.88	86	58-114	16.38
boys (n=13)	85	72-91	4.83	92	75-131	16.74

## ***Girls' v boys' responses***

Responses were first analysed to see if there were any differences between all responses from girls and all responses from boys (to both videos). Table 9.2 reports answers from questions requiring quantitative analysis. Three “don’t know” responses (one to question 6 and two to question 14) were excluded from the analysis. There is a trend for more girls to answer question 4 correctly ( $\chi^2(1)=2.74$ ,  $p=0.098$ ), however more than 20% of cells have expected counts less than 5 making the results of this analysis unreliable. Otherwise, there are no significant differences between responses from girls and from boys to these questions.

## ***Q.2 “Did she count all her fingers, up to ten?”***

***Q.4 “Did she build a proper tower using all the cups?”***

***Q.6 “Could she build a tower with these cups?”***

***Q.10 “Could she do this jigsaw...this jigsaw?”***

***Q.14 “Is she like a six year old or like another number?”***

**Table 9.2. Correct responses from girls and boys to questions 2, 4, 6, 10 and 14 as percentages.**

question number	girls' responses (n=32)	boys' responses (n=26)
2	59	46
4	97	85
6	52	50
10	50	58
14	63	58

Table 9.3 reports answers to those questions requiring qualitative analysis. Responses from all questions have been combined and the table reports whether each category was mentioned in responses to any of these questions. The categorisation is the same as described in chapter 7 with an additional category 13 (“is younger than me”). The rationale for this additional category will be described in more detail in chapter 12. More girls than boys use category 10, ( $\chi^2(1)=5.44$ ,  $p<0.05$ ), however more than 20% of cells have expected counts less than 5 making the results of this analysis unreliable. There are no other significant differences in responses from girls and from boys to these questions.

***Q.1 “Tell me all the things that are different between them”***

***Q.3 “Why didn’t she (count all her fingers)?”***

***Q.5 “Why didn’t she (build a proper tower)?”***

***Q.7 “Why not (build a tower with these cups)?”***

***Q.9 “How come you can (build a tower) and she can’t?”***

***Q.11 “Why not (do this jigsaw...this jigsaw)?”***

***Q.13 “How come you can (do these jigsaws) and she can’t?”***

***Q.15 “What can that number do?”***

**Table 9.3. Girls’ and boys’ percentage use of categories to questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	girls’ responses (n=32)	boys’ responses (n=26)
1	78	81
2	59	54
3	53	35
4	34	19
5	6	12
6	16	7
7	-	4
8	19	15
9	13	23
10	19	-
11	-	-
12	88	77
13	41	27

Note: every child responded to two videos

### ***Girls’ v boys’ videos***

Secondly, responses were analysed to see if there were any reported differences between the girls’ and the boys’ videos. Table 9.4 reports answers to questions requiring quantitative analysis, using the same coding as before. The three “don’t know” responses were excluded from the analysis. There is a trend for more children to correctly answer question 2 when watching the girls’ video ( $\chi^2(1)=3.44$ ,  $p=0.63$ ).



Otherwise there are no significant differences between responses to the girls' and the boys' videos.

**Table 9.4. Correct responses to the girls' and boys' videos for questions 2, 4, 6, 10 and 14 as percentages.**

question number	girls' video (n=29)	boys' video (n=29)
2	69	45
4	90	93
6	48	54
10	45	62
14	61	61

Table 9.5 reports answers to those questions requiring qualitative analysis and comparing between combined responses from girls and boys to the girls' versus the boys' videos. Category 12 is used more often in describing the girl's disability ( $\chi^2(1)=7.73$ ,  $p<0.01$ ). No other significant differences were found.

**Table 9.5. Percentage use of categories to the girls' and boys' videos for questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	girls' video (n=29)	boys' video (n=29)
1	76	83
2	59	59
3	52	38
4	21	34
5	3	14
6	10	17
7	-	-
8	17	17
9	17	17
10	14	7
11	-	-
12	97	69
13	34	34

### ***First video v second video***

Responses were then analysed to see if there were differences in responses which were due to the order in which videos were viewed. Responses to questions requiring quantitative analysis are reported in table 9.6. Once again the three “don’t know” responses are excluded. There are no significant differences attributable to the order in which videos were shown.

**Table 9.6. Correct responses to the first and second videos for questions 2, 4, 6, 10 and 14 as percentages.**

question number	first video (n=29)	second video (n=29)
2	45	62
4	90	93
6	54	48
10	52	55
14	64	57

Table 9.7 reports answers to those questions requiring qualitative analysis. As before, responses from all questions have been combined. Again there are no significant differences.

**Table 9.7. Percentage use of categories to the first and second videos for questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	first video (n=29)	second video (n=29)
1	83	76
2	62	55
3	45	45
4	31	24
5	7	10
6	14	14
7	3	-
8	14	21
9	17	17
10	14	7
11	-	-
12	86	79
13	38	31

***Girls' video first v girls' video second***

The final analyses examined whether there are any differences in responses to the same gender video which could be attributed to the order in which the videos were viewed. Responses to the girls' videos are reported in tables 9.8 and 9.9. Two "don't know" responses to question 14 are not included. Category 13 is used more often when viewing the girls' video first ( $\chi^2(1)=4.89$ ,  $p<0.05$ ), however more than 20% of cells have expected counts less than 5 making the results of this analysis unreliable. There are no other significant differences.

**Table 9.8. Correct responses to girls' video first and girls' video second for questions 2, 4, 6, 10 and 14 as percentages.**

question number	girls' video first (n=15)	girls' video second (n=14)
2	74	64
4	87	93
6	60	36
10	66	43
14	53	64

**Table 9.9. Percentage use of categories to girls' video first and girls' video second for questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	girls' video first (n=15)	girls' video second (n=14)
1	67	86
2	67	50
3	53	50
4	13	29
5	-	7
6	7	14
7	-	-
8	7	29
9	20	14
10	20	7
11	-	-
12	100	93
13	53	14

***Boys' video first v boys' video second***

Finally the same analyses were repeated for the boys' videos and are reported in tables 9.10 and 9.11. One "don't know" response to question 6 is not included. There is a trend for more children to get question 2 correct when viewing the boys' video second ( $\chi^2(1)=2.89$ ,  $p=0.09$ ). Category 1 is used more often ( $\chi^2(1)=5.64$ ,  $p<0.05$ ) and there is a trend for category 4 to be used more often ( $\chi^2(1)=2.88$ ,  $p=0.09$ ) when the

boys' video is viewed first. However for these last two analyses more than 20% of cells have expected counts less than 5 making the results unreliable. Otherwise, the differences are not significant.

**Table 9.10. Correct responses to boys' video first and boys' video second for questions 2, 4, 6, 10 and 14 as percentages.**

question number	boys' video first (n=14)	boys' video second (n=15)
2	29	60
4	93	94
6	43	60
10	29	47
14	71	47

**Table 9.11. Percentage use of categories to boys' video first and boys' video second for questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	boys' video first (n=14)	boys' video second (n=15)
1	100	67
2	57	60
3	36	40
4	50	20
5	14	13
6	21	13
7	7	-
8	21	13
9	14	20
10	7	7
11	-	-
12	71	67
13	21	47

## Discussion

The aims of this study were to assess whether there are any differences in responses to the videos from boys and from girls; whether there are any perceived differences

between the boys' and the girls' videos; and whether the order in which the videos are shown would have an effect upon responses. The hypotheses were that there would be no differences between any of these. The only reliable significant difference which was found was that children were more likely to use category 12 when describing the girl's, than the boy's, disability. Since this is the miscellaneous category, it is unlikely that this would have significant effects upon the results in further studies. The reliable trends which were observed were that children were more likely to correctly identify the disabled girl's, than the boy's, verbal difficulties (question 2), and were more likely to correctly identify the disabled boy's verbal difficulties when viewing this video second rather than first. This suggests that the disabled girl may have been perceived as less verbally able than the boy, and that having seen the girl first, children may then have been more sensitive to the boy's verbal difficulties. However, since there were no reliable significant differences in response to subsequent questions about the disabled children's perceived abilities, it is hoped that this will not have a significant impact upon the following studies. This is particularly important since it was not always possible to match children for gender in these studies and so some matched pairs watched different gender children.

## **CHAPTER 10**

### **STUDY II - SIBLINGS AND THEIR MATCHED CONTROLS**

#### **Introduction**

Study II examines understanding of learning disability, ratings of social acceptance and understanding of the normative concept of ability among children aged 3 to 7. Following previously-cited work (Hames, 1997; 1998), the review of research techniques discussed in chapter 5 and the results obtained by some of the siblings in the longitudinal study (chapter 4), it is hypothesised that children can display an earlier understanding of ability and disability than has previously been assumed if appropriate methods of investigation are used. In addition, it is hypothesised that if understanding of disability is aided by observing, listening and interacting with someone who has a learning disability, then the siblings of children with learning disabilities will gain an earlier understanding of learning disability than similarly-aged children who do not normally have contact with people with learning disabilities.

Recent research has suggested that children who have daily contact with children with disabilities are more likely than peers who have not had these experiences, to judge similarly disabled children as socially acceptable (Diamond, Hestenes, Carpenter and Innes, 1997; Okagaki, Diamond, Kontos and Hestenes, 1998). On the other hand, some of the siblings in the first pilot study had indicated awareness of the negative social stigma associated with their learning disabled brother or sister. The hypothesis in this study therefore is that having a brother or sister with a learning disability will have some impact

upon ratings of social acceptance given to a hypothetical child with a learning disability and similarly, children who display greater understanding of learning disability will differentially rate the social acceptability of a hypothetical child with a learning disability. Due to the contradictory findings described above, is not clear whether this will be in a more positive or more negative direction.

Since disability and ability are different points along the same continuum, one could assume that someone who has understanding of one should have understanding of the other. Since understanding of ability can be measured by assessment of the attainment of normative concept of ability, (and social environment has been found to affect the rate of acquisition of normative concept; Butler and Ruzany, 1993), it is hypothesised that children who are siblings of children with disabilities and children who have greater understanding of learning disability will be more likely to have developed an understanding of the normative concept of ability.

## **Method**

### ***Sampling strategy***

Special schools for children with special needs in the North East of England were contacted. In total, 22 schools from five Local Education Authorities were approached. The research was explained to the heads of the schools and they were asked if they would participate. All but one agreed. As particular criteria needed to be met in identifying experimental children, random sampling methods could not be used. A combination of purposive and voluntary sampling techniques were used: school staff were asked to



contact families who met certain criteria and families could decide whether or not to be involved in the research. In practice, less than half of those contacted consented to involvement. The criteria to be met were:

- families to have a disabled child with a severe learning disability and a younger sibling, aged between 3 and 7 who attended a mainstream school
- the younger child should not have a statement of special needs
- the disabled child would be expected to be functioning at an intellectual level below the level of the mainstream child
- the family should not have been involved in the experimenter's previous research

Each family who was contacted was sent an information leaflet explaining the reasons for the research, outlining the procedures in the interview and giving the experimenter's name as a contact for further information. Parents were asked to sign a consent form which was returned to the special school. The consent form asked for details of the younger sibling and the school attended by him/her.

While special schools with children of all ages were approached, the vast majority of responses came from families where the child with special needs was still of primary school age. There were two reasons for this: one was that younger rather than older children are more likely to have younger siblings aged between 3 and 7 years, and secondly that primary special schools, which tend to be smaller, generally have better contact with families than secondary schools. In practice it was probably better that the

majority of children were close in age to their disabled brothers and sisters as closeness in age is related to increased contact between siblings (Dunn, 1993) and hence more opportunities for identification and comparison between siblings.

### ***Participants***

Fifty two children with an older brother or sister with learning disabilities were identified. Each of the schools which these siblings attended was contacted and asked to identify a suitable control. Matching was to be by verbal ability, school class, age, gender, position within the family and gender of older sibling. It was important that children were matched for verbal ability so that differences in their responses could not be accounted for by differences in ability. This was assessed by the British Picture Vocabulary Scale (Long Form). The children were considered to be true matches if their confidence bands overlapped (the confidence band being  $\pm 1$  standard error of measurement of the estimated true score). Matching was by school class as research has shown that the environment can have an impact upon development of normative concept of ability (Butler and Ruzany, 1993), affected by the extent to which a class teacher emphasises competition and co-operation. As far as possible, class teachers were asked to select children whose birthdays fell in the same term, particularly for children of nursery and reception age. Matching was to be by gender so that each pair of children would see the same gender video. Matching by position in the family and gender of the older sibling was so that all children would have older brothers or sisters and therefore would have some idea about what older children can achieve. The matched families were sent an appropriate

information leaflet, explaining the reasons for their involvement, and consent form, and asked to return the signed consent form to the experimenter.

In practice it was very difficult for schools to initially achieve true matches. Many schools selected control children whom they felt were more likely to co-operate with the experimenter, arguing that co-operative parents were more likely to complete and return the consent forms. Selected controls were often more able than the experimental child. If the control child did not match on ability then further controls were requested from the class until a better match was found. Often due to class size it was difficult to obtain matching on all the criteria. The most important criteria were felt to be verbal ability and school class, and after this schools were asked to match by as many of the other criteria as possible.

In total, 113 children were interviewed, 13 of nursery age (3-4 year olds), 43 of reception age (4-5 year olds), 28 from year one (5-6 year olds) and 29 from years two and three (6-7 year olds). Of these, there were 50 children with older brothers and sisters with learning disabilities and 50 appropriate matches. Six pairs of children were of nursery age, 20 pairs were of reception age, 12 were in year one and 12 in years two/three. While information was not collected initially on level of disability, parents and schools were later asked over the phone whether the disabled children could walk and talk. A very crude measure of disability was then devised, resulting in 18 children being defined as having a profound learning disability (no speech or single words) and 32 children as having a severe learning disability.

## ***Procedure***

### ***Setting up interviews***

Once a sibling and his/her control child had been identified, the school they attended was contacted to arrange the interviews with the children. As children were seen during the first academic term of the school year, no interviews were arranged during the first three weeks of term to allow children (and schools) time to settle. All interviews with nursery children and the majority of reception children were arranged for the second half of the term. The time needed to complete the interviews was explained to school staff and a room was requested where there would be no disturbances and which would not be alien to the children. Since pre-school children in particular do not utilise their full capacity for language in an unfamiliar environment (Mostache and Bragonier, 1981; Chafel, 1986) it was important that children should be made as comfortable as possible and not feel intimidated both by a strange adult and a strange environment.

Parents were contacted the night before the interview by the experimenter and reminded about the interview. They were asked to tell their children if they felt that this would reassure him or her, but parents were asked not to tell children about the reasons for the interview. All parents agreed to this. At this point, the parents of the control children were also asked if their children had had any contact with children with disabilities. None had any knowledge of disabilities. All parents were told that they could later receive a summary of the results if they were interested in this.

### *Interview*

If possible, the experimenter met the children in the classroom and was introduced by the class teacher. Many of the class teachers had already spoken to the children about the interview. The teacher was asked to decide the order in which the children were to be seen. If necessary, the experimenter stayed with the children in the classroom until they were happy to complete the interview. This happened with all the nursery children. The children were then asked individually if they would like to complete the interview. Two children refused to leave the room and so their interviews were completed on a later date in the classroom environment. Most of the nursery children and one reception child were accompanied and supported by their teaching staff during the interview. Two children were interviewed with their parents, on the parents' request.

In order to gather fuller and more accurate data, particularly with pre-schoolers, the importance of building rapport (Gordon, Schroeder, Ornstein and Baker-Ward, 1995) and being supportive throughout the interview (Goodman, Rudy, Bottoms and Aman, 1990) has frequently been noted. A warm-up period was built into the interview which allowed children to become accustomed to the interviewer and the interview room. They were asked the names of their brothers and sisters, which also allowed the name of the disabled sibling to enter conversation at the start of the interview. This was to help those children who may have felt embarrassment about talking about a disabled sibling. The children were asked to complete the tower of cups, the two inset jigsaws and count their own fingers to 10. This was a continuation of the warm-up period, introduced the children to the activities which would be asked about later, and was also a check that children could

complete all the activities which were to be discussed. All children could complete the tower and the inset jigsaws and the majority could count their fingers to 10. Some nursery children needed help with counting their fingers and the implications of this will be discussed later in the results section. They were asked: “did you build a proper tower using all the cups?” and “did you count all your fingers, up to 10?” thereby asking them the questions which would later be asked about the disabled child. The aim of these questions was to prepare children for the questions which would be raised later and to ensure that they understood them.

Following the warm-up period the interview was completed. This typically lasted 30 minutes. After completion of the interview children were praised for their performance and their behaviour and were escorted back to class.

### ***Analysis***

There has been considerable debate about the use of parametric and non-parametric statistics. Cramer (1998) has noted that some statisticians have claimed that parametric statistics should only be applied when the following conditions are fulfilled:

- The variables are measured with an interval scale
- The samples are drawn from populations whose variances are equal
- the samples are drawn from populations whose distributions are normal

Since the majority of analysable data in this study is nominal (either correct or incorrect), non-parametric statistics will usually be used. While attempts were made to match pairs of children in this study, it was recognised that matching was only made on a limited number of variables. Also, since change was not an option for these children as the variable which explains difference is exposure or lack of exposure to a disabled sibling, it was felt that non-parametric tests involving paired measures were not appropriate. Non-parametric tests with independent samples were considered to be most appropriate for analysing responses to individual questions. The Fisher exact test is quoted where N is less than or equal to 20. Chi-squared has been used where N is between 20 and 40 and all expected frequencies are 5 or more. If the smallest expected frequency is less than 5, the Fisher exact test is used. When N is greater than 40, chi-squared has been corrected for continuity (Siegal and Castellan, 1988).

The reported results will be with two-tailed tests. This is because the majority of statistical procedures which will be used, chi-squared and Fisher's exact, are tests of difference and not of direction and so one-tailed tests can not be carried out. However this study holds a number of directional hypotheses; that siblings of children with learning disabilities will gain an earlier understanding of learning disability and will be more likely to have developed an understanding of the normative concept of ability than similarly-aged children who do not normally have contact with people with learning disabilities, and that children who have greater understanding of learning disability will be more likely to have developed an understanding of the normative concept of ability. If any differences are

found in the hypothesised directions using two-tailed tests, the level of significance would have been higher if one-tailed tests could have been used.

## Results

Table 10.1 gives the children's chronological and vocabulary ages. In tables, figures and further analysis sibs/siblings will refer to the children with disabled siblings, cons to their controls, N will refer to nursery, R to reception, Y1 to year one and Y2/3 to children in years two and three.

**Table 10.1. Chronological and vocabulary ages in months (means, ranges and standard deviations)**

children	chronological ages			vocabulary ages		
	mean	range	sd	mean	range	sd
N sibs (n=6)	43	39-50	3.97	33	27-36	4
N cons (n=6)	41	39-47	3.01	38	33-43	3.83
R sibs (n=20)	57	50-62	3.46	47	33-75	11.14
R cons (n=20)	56	50-61	3.76	51	33-65	9.29
Y1 sibs (n=12)	67	63-73	3.59	63	46-84	12.95
Y1 cons (n=12)	65	60-68	2.81	65	43-84	11.76
Y2/3 sibs (n=12)	84	73-95	7.41	80	51-96	13.85
Y2/3 cons (n=12)	82	73-98	7.82	81	51-107	17.12

Kolmogorov-Smirnov tests confirm that the chronological and vocabulary ages are normally distributed. Analysis of variance indicates that there is a significant difference in vocabulary scores between the age groups ( $F(3,96)=56.55$ ,  $p<0.001$ ). T-tests between siblings and control children in each age group indicate that variances are equal and that none of the differences in chronological and vocabulary ages is significant, though the



difference between the vocabulary ages of the siblings and control children from nursery is approaching significance ( $t(10)=-1.989$ ,  $p=0.075$ ).

### ***Video and questions***

Children's responses to this section of the questionnaire (questions 1-16, 32 & 33) were coded in three different ways. First, for those questions which required yes and no responses and were therefore easily quantified (questions 2, 4, 6, 10, 14, 16, 32 & 33), descriptive statistics were compiled. For those questions which required qualitative responses (questions 1, 3, 5, 7, 9, 11, 13, & 15), explanations were coded according to the categorisation devised for this study. In addition, a purely descriptive account of children's responses has been produced in order to illustrate the highly informed responses provided by some very young children. Analysis of the responses to the easily quantified questions will be presented first.

### ***-questions permitting quantitative analysis***

#### ***Q.2 "Did she count all her fingers, up to ten?"***

#### ***Q.4 "Did she build a proper tower using all the cups?"***

All but one of the children (a reception age child), recognised that the disabled child on the video had not built a tower. On the other hand, nine nursery-aged children (75%), seven reception children (18%) and one child from year one (4%) said (incorrectly) that the child had counted his/her fingers. All of the nursery children who got this question wrong had needed help in counting their own fingers. There were no significant differences between the numbers of siblings and control children who had difficulties with these questions.

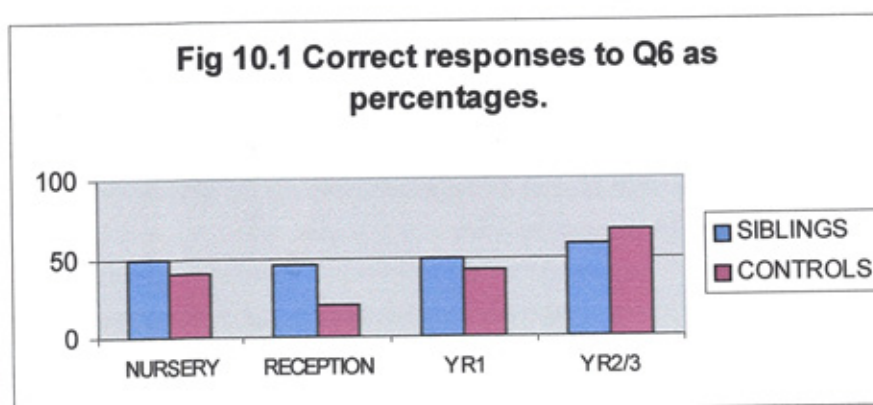
**Q.6 “Could she build a tower with these cups?”**

**Q.10 “Could she do this jigsaw...this jigsaw?”**

Questions 6 and 10 asked children to guess whether the disabled child on the video would be able to complete further tasks. Tables 10.2 and 10.3 and figures 10.1 and 10.2 illustrate children’s responses across the four age groups and between siblings and control children to these questions (excluding those children who replied “don’t know”). One control child from nursery could not answer questions 6 and 10. For question 6, “no” responses have been coded as N and “yes” as Y (the correct response is N). For question 10, children who responded “yes” or “no” to the first jigsaw and “no” to the second have been coded N and those who responded “yes” or “no” to the first jigsaw and “yes” to the second have been coded Y (the correct response is N).

**Table 10.2. Responses to question 6: “Could she build a tower with these cups?”(correct response is N)**

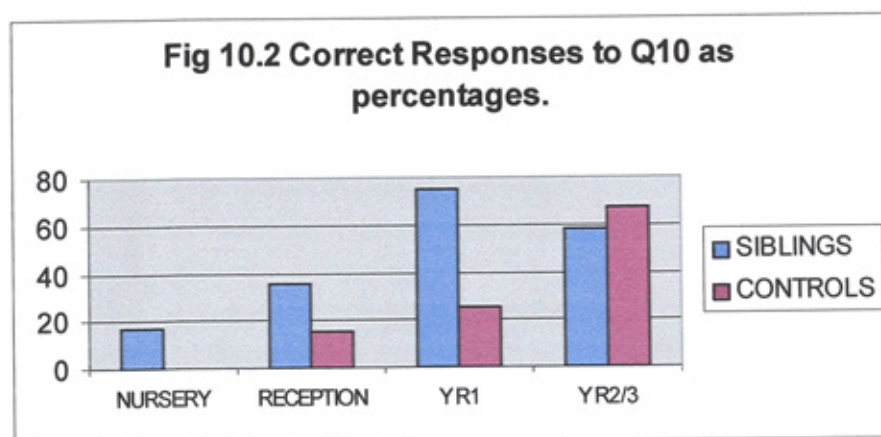
respons	nursery			reception			year one			year two/three		
	sibs n=6	cons n=5	total n=11	sibs n=20	cons n=20	total n=40	sibs n=12	cons n=12	total n=24	sibs n=12	cons n=12	total n=24
N	3	2	5	9	4	13	6	5	11	7	8	15
Y	3	3	6	11	16	27	6	7	13	5	4	9



Looking at responses to question 6 (table 10.2), combining all the responses from siblings and control children, and comparing between age groups, there is a trend from reception to year two with older children more likely to recognise that the disabled child on the video would not be able to build another tower ( $\chi^2(2)=5.501$ ,  $p=0.064$ ). Comparing responses between siblings and control children within age groups, there is a trend between the 4-5 year olds from reception, with more siblings recognising that the disabled child on the video would not be able to build another tower ( $\chi^2(1)=2.849$ ,  $p=0.091$ ).

**Table 10.3. Responses to question 10: “Could she do this jigsaw...this jigsaw?”**  
(correct response is N)

respons	nursery			reception			year one			year two/three		
	sibs n=6	cons n=5	total n=11	sibs n=20	cons n=20	total n=40	sibs n=12	cons n=12	total n=24	sibs n=12	cons n=12	total n=24
N	1	-	1	7	3	10	9	3	12	7	8	15
Y	5	5	10	13	17	30	3	9	12	5	4	9



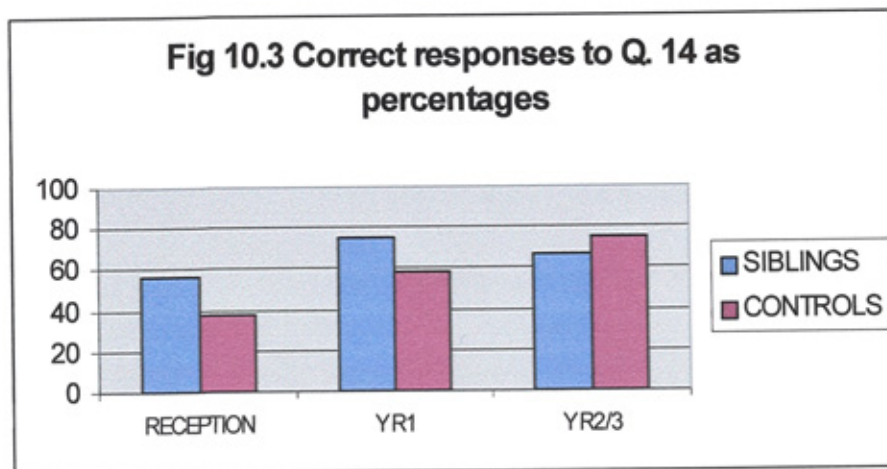
In response to question 10 (table 10.3), and once again combining responses from siblings and control children and comparing between age groups, there is a significant difference in scores, from reception to year two, for children to recognise that the disabled child on the video will have difficulty completing the second (or both) jigsaws ( $\chi^2(2)=10.499$ ,  $p<0.01$ ). Combining all the responses from the siblings and comparing with all the responses from the control children, more siblings correctly predict the outcome ( $\chi^2(1)=3.950$ ,  $p<0.05$ ) though the significance is reduced when the continuity correction is applied ( $\chi^2(1)=3.171$ ,  $p=0.07$ ). Comparing between siblings and control children and within age groups, there is a trend between the reception children ( $\chi^2(1)=2.133$ ,  $p=0.144$ ) and a significant difference in responses between the year one children ( $\chi^2(1)=6$ ,  $p<0.05$ ), in each case with the siblings being more likely to predict the correct outcome.

***Q.14 “Is she like a six year old or like another number?”***

In response to this question, those children who thought that the disabled child on the video was aged less than six ( $<6$ ) were compared with those children who thought that he or she was aged six or more ( $>6$ ) (the correct response is  $<6$ ). Children who either said that the child was “a different number” or “don’t know” were excluded from the analysis. Since half of the nursery children were unable to answer this question, these children are excluded from figure 10.3.

**Table 10.4. Responses to question 14: “Is she like a six year old or like another number?” (correct response is <6)**

	nursery			reception			year one			year two/three		
respos	sibs n=3	cons n=3	total n=6	sibs n=18	cons n=19	total n=37	sibs n=12	cons n=12	total n=24	sibs n=12	cons n=12	total n=24
<6	3	-	3	10	7	17	9	7	16	8	9	17
>6	-	3	3	8	12	20	3	5	8	4	3	7



Combining responses from siblings and control children and comparing between reception, year one and years two/three, there is a trend as older children are more likely to recognise that the disabled child on the video is like a younger child ( $\chi^2(2)=4.572$ ,  $p=0.102$ ). There is a trend for more siblings to recognise the immaturity of the disabled child, though these results are unreliable due to the low numbers involved ( $\chi^2(1)=2.598$ ,  $p=0.11$ ).

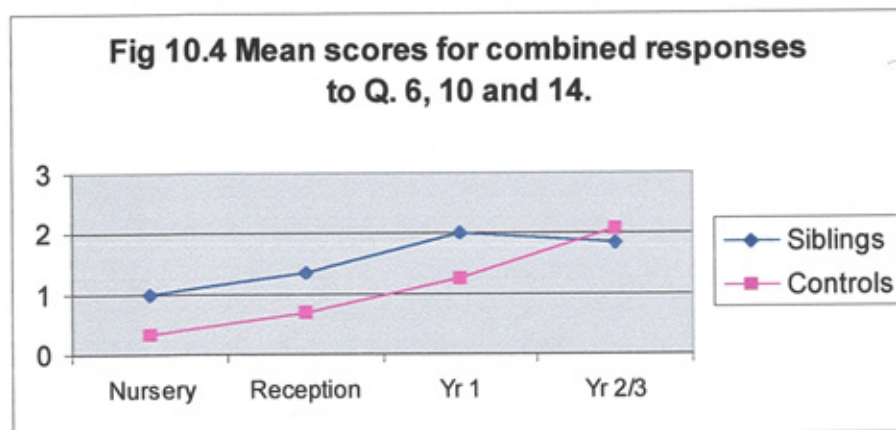
Finally, overall level of understanding was assessed by combining responses to questions 6, 10 and 14. By giving each child a score of 1 for a correct response to any question and 0 for an incorrect response, this produced an interval scale which ranged from 0 (little understanding) to 3 (high level of understanding). The frequency of children's scores for



this new variable are illustrated in table 10.5 and the mean scores for each group in figure 10.4. The standard deviations are: N sibs=0.98, N cons=0.52, R sibs=1.13, R cons= 0.79, Y1 sibs=0.85, Y1 cons=1.19, Y2/3 sibs=0.79, Y2/3 cons=0.85.

**Table 10.5. Frequencies of combined responses to questions 6, 10 and 14 (*higher score = greater understanding*)**

respon s	nursery			reception			year one			year two/three		
	sibs n=6	cons n=6	total n=12	sibs n=20	cons n=20	total n=40	sibs n=12	cons n=12	total n=24	sibs n=12	cons n=12	total n=24
0	2	4	6	4	9	13	-	4	4	-	-	-
1	3	2	5	10	9	19	4	3	7	4	4	8
2	-	-	-	1	1	2	4	3	7	6	3	9
3	1	-	1	5	1	6	4	2	6	2	5	7



This new combined variable contains interval rather than nominal data allowing use of more powerful statistical procedures. Kolmogorov-Smirnov tests confirm that this new variable is normally distributed. However, with such small groups, there is debate over whether parametric or non-parametric tests should be used (Cramer, 1998). Since analysis of variance is the ideal procedure to use in this case, this was completed while at the same

time recognising that it may not be the most appropriate test. As a check on findings, Kruskal Wallis which is the non-parametric equivalent procedure was also completed as well as Mann-Whitney to test differences between siblings and controls within age groups.

A two x four analysis of variance reveals that overall level of understanding increases significantly with age group ( $F(3,92)=7.98$ ,  $p<0.0001$ ) and is significantly higher among siblings than controls ( $F(1,92)=5.02$ ,  $p<0.05$ ). There is no interaction between these two variables. Kruskal Wallis across ages indicates again that overall level of understanding increases significantly with age group ( $\chi^2(3)=20.699$ ,  $p=0.0001$ ). Mann-Whitney between all siblings and all controls indicates that siblings have a significantly greater understanding of the disabled child's difficulties than do controls (Mann-Whitney=927.5,  $p<0.05$ ). Mann-Whitney tests between siblings and control children and within age groups, indicate that there is a significant difference between the siblings and control children in reception (Mann-Whitney=131,  $p<0.05$ ) and a trend in year one (Mann-Whitney=44,  $p=0.094$ ), in each case with the siblings showing greater understanding.

Overall level of understanding was also compared between the siblings of children with profound and severe learning disabilities. Parametric and non-parametric procedures resulted in no significant differences.

***Q.16 “Is (child on video) like a girl/boy you know?”***

The responses to this question were difficult to analyse as it was not always clear to whom children were referring. Fourteen of the siblings said that the disabled child on the video was like their own disabled brother or sister or like another child in their brother or sister's class. One sibling and six control children said that the disabled child was like a baby or a much younger child whom they knew. A further nine siblings and eight control children said that the disabled child was like someone else - usually another 6 year old. While prompting from the experimenter suggested that this last group of children were identifying others who were of similar age rather than similar ability to the disabled child on the video, this information was not easily verified.

***Q.32 “Which is the easiest jigsaw?”***

***Q.33 “Which is the hardest jigsaw?”***

These questions were added to validate the findings from responses to question 10. All children answered these questions correctly.

***-questions requiring qualitative analysis***

***Q.1 “Tell me all the things that are different between them”***

***Q.3 “Why didn't she (count all her fingers)?”***

***Q.5 “Why didn't she (build a proper tower)?”***

***Q.7 “Why not (build a tower with these cups)?”***

***Q.9 “How come you can (build a tower) and she can't?”***

***Q.11 “Why not (do this jigsaw...this jigsaw)?”***



***Q.13 “How come you can (do these jigsaws) and she can’t?”***

***Q.15 “What can that number do?”***

Answers to these questions were analysed in two different ways. First, responses were coded according to the categorisation of children’s explanations devised for this study so that differences between age groups and between siblings and control children could be examined. Secondly, in order not to lose the quality of the individual responses, some of the most detailed and informed responses are presented to illustrate the depth of understanding provided by these children. Analysis of responses by categorisation will be presented first. Table 10.6 describes the categorisation devised for this study and previously discussed in chapter 7.

**Table 10.6. Children’s explanations for ability and lack of ability**

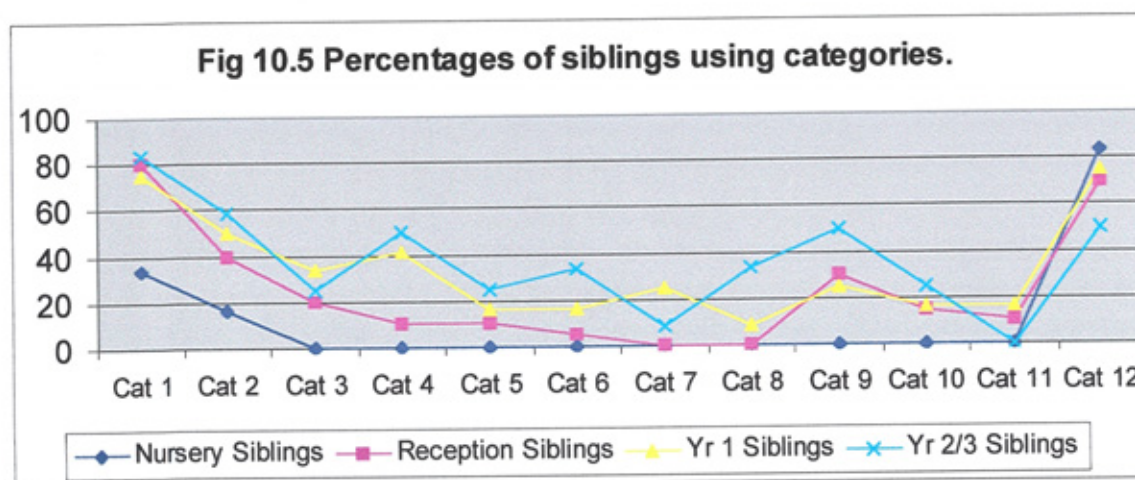
1.	Description of appropriate/ inappropriate task response
2.	Task specific ability/lack of ability
3.	Associations
4.	General description of ability/lack of ability
5.	Mental processes
6.	Attention
7.	Motivation
8.	Experience
9.	Task difficulty
10.	Age
11.	Behaviour
12.	Miscellaneous

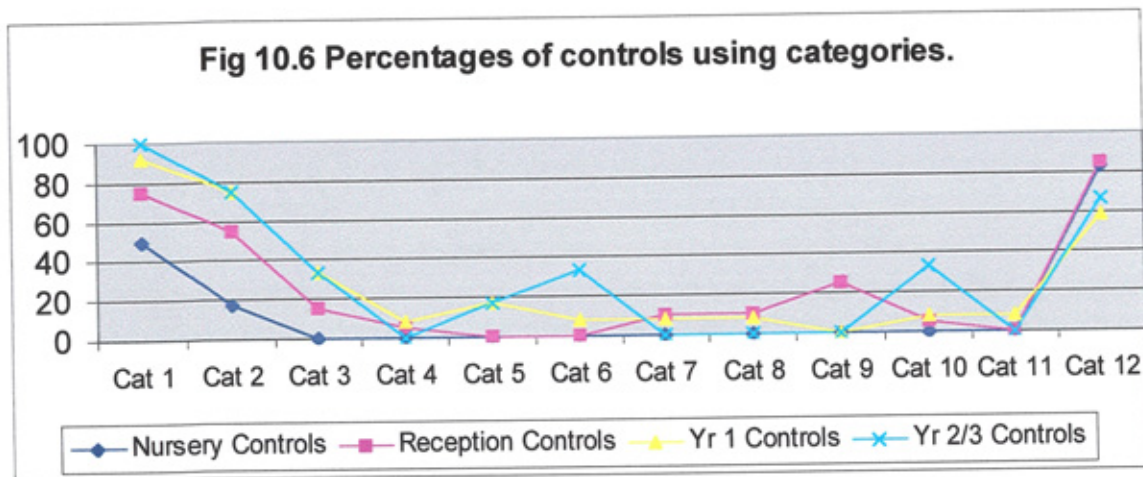
Since the majority of children provided very brief responses to the questions, it would not be appropriate to analyse children’s responses question by question. Instead, responses to

questions 1, 3, 5, 7, 9, 11, 13 and 15 are combined. The table and figures below describe the numbers and percentages of children using each of the categories. Children could use more than one category.

**Table 10.7. Children's use of categories to questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	nursery			reception			year one			year two/three		
	sibs n=6	cons n=6	total n=12	sibs n=20	cons n=20	total n=40	sibs n=12	cons n=12	total n=24	sibs n=12	cons n=12	total n=24
1	2	3	5	16	15	31	9	11	20	10	12	22
2	1	1	2	8	11	19	6	9	15	7	9	16
3	-	-	-	4	3	7	4	4	8	3	4	7
4	-	-	-	2	1	3	5	1	6	6	-	6
5	-	-	-	2	-	2	2	2	4	3	2	5
6	-	-	-	1	-	1	2	1	3	4	4	8
7	-	-	-	-	2	2	3	1	4	1	-	1
8	-	-	-	-	2	2	1	1	2	4	-	4
9	-	-	-	6	5	11	3	-	3	6	-	6
10	-	-	-	3	1	4	2	1	3	3	4	7
11	-	-	-	2	-	2	2	1	3	-	-	-
12	5	5	10	14	17	31	9	7	16	6	8	14





There is a trend for more siblings in year one to use category 4 (Fisher's exact two-tailed=0.154), and more siblings in years two/three to use category 4 (Fisher's exact two-tailed=0.014), category 8 (Fisher's exact two-tailed=0.093) and category 9 (Fisher's exact two-tailed=0.014). However all these results are unreliable due to the low numbers involved.

In the description of the development of the categorisation, it was noted that categories 1, 5, 9 and 12 were used by 50% or more adults and categories 2, 3 and 6 by 25-49%. Among children in year two/three, 50% or more of the siblings used categories 1, 2, 4, 9 and 12 and 50% or more of controls used categories 1, 2 and 12. Between 25% and 49% of siblings used categories 3, 5, 6, 8 and 10 and a similar percentage of controls used categories 3, 6 and 10. This indicates that among the oldest siblings, more of them used categories that are used most commonly by adults.

The description of the categories in chapter 7 suggested that categories 1 through to 5 represent increasingly sophisticated explanations for why a child cannot complete a task.

The results from adults indicate that category 5 does represent a mature explanation for lack of ability, though adults do not show much evidence of using category 4. Below are some examples of the more mature explanations given by children. A full list is provided in appendix F. However, since category 4 was used by many of the siblings in quite a sophisticated manner, responses which include this category are illustrated also. The children's vocabulary ages are included, as well as their chronological ages, as many of these children were functioning well below their chronological ages, yet were able to give very clear explanations.

#### ***Category 4***

Warren, aged 51 months (vocabulary age 45 months).

*I'm clever. I can do all the jigsaws in the world.* (in response to question 13)

Jane, aged 60 months (vocabulary age 49 months)

*She's not clever like me. If you're not clever you can't do jigsaws.* (in response to question 13)

Henry, aged 55 months (vocabulary age 51 months), older disabled brother.

*He's "specialer". Can't talk properly. Like my Edward.* (in response to question 3)

*He's special. He can't talk and can't make things.* (in response to question 13)

### ***Category 5***

Julie-Ann, aged 66 months (vocabulary age 67 months), older disabled brother.

*She can't think that.* (in response to question 3)

Sarah, aged 57 months (vocabulary age 69 months), older disabled brother.

*She doesn't understand.* (in response to questions 9 and 13).

Adam, aged 81 months (vocabulary age 70 months), older disabled sister.

*He thinks it's too hard.* (in response to question 13)

What these comments illustrate, along with those in appendix F, is that children with chronological ages of 4 vocabulary ages of just under 4 years and upwards are able to talk about ability and disability in quite clear ways. They are using terms such as “clever” and “special” and are explaining what these mean. From 5 years onwards children are able to give mature responses regarding mental processes. These include children who do and do not have siblings with learning disabilities.

### ***Social acceptance***

Children rated their perceived acceptability of the disabled child on an adaptation of six items from Harter and Pike's perceived competence and social acceptance scale. Their final total score could range from 6 points which indicated that they thought that the disabled child would have few friends, to 12 points which indicated that they thought that the disabled child would have many friends. Table 10.8 compares the number of responses

from children who thought that the disabled child would have few friends (low score of 6 or 7) with those who thought that the disabled child would have many friends (high score of 11 or 12). Intermediate scores are not recorded as these were often given by children who appeared not to understand the underlying purpose of this questionnaire (see chapter 7).

**Table 10.8. Perceived social acceptance of disabled child**

children	low score (few friends)	high score (many friends)
N sibs (n=6)	-	-
N cons (n=6)	-	1 (17%)
R sibs (n=20)	6 (30%)	6 (30%)
R cons (n=20)	2 (10%)	6 (30%)
Y1 sibs (n=12)	3 (25%)	3 (25%)
Y1 cons (n=12)	4 (33%)	4 (33%)
Y2/3 sibs (n=12)	7 (58%)	2 (17%)
Y2/3 cons (n=12)	6 (50%)	3 (25%)

As can be seen from this table, the majority of nursery children did not consistently rate the disabled child as either having few or many friends. Even by reception age, 60% of control children did not apply consistent ratings. The high numbers of children giving intermediate ratings resulted in the mean scores for each group being remarkably similar. By combining the responses from siblings and control children, although the percentage of all children giving the disabled child a low social acceptance score increases with age, and the percentage of children giving the disabled child a high social acceptance score decreases with age, the correlation between social acceptance scores and age is not large enough to be significant. Statistical analysis (chi-square) found no significant differences

between the social acceptance ratings given by the siblings and control children suggesting that having a sibling with a learning disability does not have an effect upon perceived social acceptance of another child with a learning disability.

Perceived social acceptability was compared between the siblings of children with profound and severe learning disabilities. Parametric and non-parametric procedures resulted in no significant differences.

Children's responses were also analysed to examine whether there was any relationship between children's understanding of the disabled child's difficulties and the extent to which this child was judged to be socially accepted. Correlating all responses to the social acceptance questions and the combined level of understanding questions, there is a small but significant negative correlation (Spearman's  $\rho = -0.2267$ ,  $p < 0.05$ ) between these factors suggesting that children with higher level of understanding of the disabled child's difficulties are more likely to suggest that this child will have fewer friends.

### ***Normative concept of ability***

Scores on the assessment of normative concept of ability range from 0 (no differentiation of the concepts of ability and difficulty), through 1 (partial differentiation i.e. answering one question correctly), to 2 (full understanding of the concepts of ability and difficulty). No nursery aged children, one sibling and one control child from reception, no year one children, and only three siblings and one control child from year two/three obtained a full

understanding. Too few children obtained a full understanding of the concept of normative ability for the results to be analysed between siblings and control children within age groups.

Children's responses were analysed to examine whether there is any relationship between children's understanding of the disabled child's difficulties and achievement of normative concept of ability. Correlating all responses to the normative concept questions with the combined level of understanding questions, there is a significant correlation (Spearman's  $\rho=0.225$ ,  $p<0.05$ ) indicating that children who have more understanding of the disabled child's difficulties are more likely to have attained normative concept of ability. Since children could have gained a score of 1 on normative concept through guessing (see chapter 6), these figures were reanalysed by coding normative concept as full (score of 2) or none (score of 0 or 1). There was still a significant positive correlation between these variables (Spearman's  $\rho=0.269$ ,  $p<0.05$ ). It was not possible to complete a chi-square between normative concept and level of understanding because of the low numbers of children achieving full understanding of normative concept.

### ***Identification with the children on the video***

After answering the questions on normative concept of ability (which were based on questions about completing jigsaws of different complexity), children were also asked to indicate which jigsaw they thought they could complete and which they thought the two children on the video could complete. They were also asked to explain their choices. This allowed further opportunity to assess whether the observing child saw similarities between



him/herself and either of the children on the video (though particularly with the non-disabled child). The table below compares children who identified themselves with the non-disabled child by saying that they would both be able to complete the same jigsaw (S/ND), children who identified themselves with the learning-disabled child (S/LD), and children who gave other responses (i.e. all complete the same jigsaw, all complete different jigsaws or the two children on the video complete the same jigsaw while the observing child completes another). Some nursery children did not answer this question.

**Table 10.9. Identification with children on video**

children	S/ND	S/LD	other
n sibs (n=3)	-	-	3 (100%)
n cons (n=4)	-	3 (75%)	1 (25%)
r sibs (n=20)	5 (25%)	6 (30%)	9 (45%)
r cons (n=20)	5 (25%)	10 (50%)	5 (25%)
y1 sibs (n=12)	3 (25%)	1 (8%)	8 (67%)
y1 cons (n=12)	5 (42%)	1 (8%)	6 (50%)
y2/3 sibs (n=12)	8 (67%)	-	4 (33%)
y2/3 cons (n=12)	5 (42%)	4 (33%)	3 (33%)

Combining siblings and control children, there is a trend between reception and years two/three for older children to be more likely to identify themselves with the non-disabled child ( $\chi^2(2)=5.644$ ,  $p=0.059$ ). While most of the observing children were younger than the children on the video, and had been told that both these children were aged 6, as they became older they were less likely to see these two children as similar and more likely to see themselves and the non-disabled child as similar. It is not possible to complete statistical analyses between the scores obtained by the siblings and control children within age groups because of the low numbers involved.

Since it was noted that children are more likely to compare themselves with the non-disabled child as they become older, and older children are more likely to indicate understanding of the disabled child's difficulties, children's responses were analysed to examine whether there is any relationship between understanding of the disabled child's difficulties and identification of oneself with the non-disabled child. Children's responses to the identification variable were divided into those who identified themselves with the non-disabled child and those who made other responses, and correlated with combined level of understanding questions. There is a significant correlation (Spearman's  $\rho=0.243$ ,  $p<0.05$ ) indicating that children who have more understanding of the disabled child's difficulties are more likely to identify themselves with the non-disabled child.

If identification with the non-disabled child suggests further understanding of the disabled child's difficulties, this response could be added to previous responses (correct responses to questions 6, 10 and 14) to produce a new level of understanding score. Children were given a score of 1 for identification with the non-disabled child and a score of 0 for other responses and these scores added to the previous combined level of understanding scores. A two x four analysis of variance reveals that this new measure of understanding increases significantly with age group ( $F(3,92)=9.55$ ,  $p<0.005$ ) and there is a trend for siblings to score more highly on this measure than control children ( $F(1, 92)= 3.21$ ,  $p=0.08$ ). Using non-parametric statistics, Kruskal Wallis across ages indicates that level of understanding as measured by this new variable increases with age ( $\chi^2(3)=24.212$ ,  $p<0.0001$ ). Mann-Whitney between all siblings and control children indicates that there is a trend for siblings

to have a greater understanding of the disabled child's difficulties (Mann-Whitney=974.0,  $p=0.051$ ). This same trend occurs between siblings and control children in reception (Mann-Whitney=139.5,  $p=0.09$ ).

## **Discussion**

The points raised here and following the subsequent studies will be in relation to particular issues which have occurred in the study concerned and areas which need further investigation. An overall discussion occurs in chapter 13.

### ***Issues related to sampling***

In common with many studies which involve voluntary sampling techniques, one cannot be sure that the eventual sample is representative. As described earlier in the method, less than half of the families with children with learning disabilities who were initially contacted agreed to be involved in the study. One school which personalised the letters to parents received a comparatively good response rate, while another school correctly predicted that the response rate would be poor as their families rarely responded to any letters from school. While these responses from parents appear to be unrelated to the content of this particular study, there may well have been some other significant decisions made by parents about whether or not they would respond. At least two parents were known to have informed the school which their disabled child attended that they did not want their non-disabled child talking about disability issues. Furthermore, some of the parents who returned the consent forms added additional details about why they were particularly

interested in their children's responses. This was also reflected in the high number of respondents expressing an interest in the summary of results which was offered to parents (88% of families with disabled children requested this on their consent forms; 70% of control families made a similar request). Families who express such a high degree of interest in their children's knowledge of disability may well be more likely to discuss disability in the home. On the other hand, it can probably be safely assumed that families who were adamantly opposed to their children being interviewed were much less likely to discuss disability in the home. The implications of all of this are that the findings from this group of siblings may well only be applicable to other siblings who come from families with a fairly open-minded approach to the discussion of disability.

The other issue in relation to selection of the experimental sample, which again has been mentioned earlier, was that the majority of responses came from families where the disabled and non-disabled children were close in age. While closeness in age offers increased opportunities for contact between siblings, once again the findings from this group of siblings may not be applicable to families where the age gap is greater and subsequently there may be less opportunities for social interaction and communication.

Additionally, it should not be forgotten that the sample of experimental children consisted solely of the younger siblings of children with severe and profound learning disabilities. Discussions with parents involved in previous research (Hames, 1998), where there was both a younger and older sibling of the child with the learning disability, highlighted that the process of understanding a brother or sister's difficulties can be different, depending

on whether the sibling is older or younger. Older siblings often know from birth, if this information is available, that their brother or sister has a disability (Hames, 1994). For younger siblings, this information has to be processed more gradually, as they begin to understand. Similarly, none of this research has examined understanding of learning disability as exhibited by the siblings of children who have much milder forms of learning disabilities.

When it came to selection of the control children, teachers found it extremely difficult to find a true match. Selecting a family which could be relied upon to return the consent form was an important practical criterion in the minds of the teachers (three of the parents of selected controls were health service colleagues of the experimenter!). Even after requesting more appropriate controls, table 10.1 indicated that within every age group the mean vocabulary age of the control group continued to be higher than the siblings (though not significantly) while the mean chronological age continued to be lower (though not significantly). Bearing in mind that the siblings were not as bright as the control group, the results are of more interest.

Another difficulty with the selection of controls, was identifying children who had had no contact with disability. Although parents had confirmed this on the phone, it was still possible that control children could have contact with less able children in the class who had not yet been identified through the statementing process. This would be more likely within the younger age group. In fact one control child, in response to question 16: *"Is she like a girl you know?"*, explained that the child on the video was very much like a boy

in her class who did not do any work and made “silly noises”. In discussion with her form teacher later, when this was mentioned, the teacher explained that she had been worried about the child who had been referred to and had asked for an opinion from the educational psychologist. She was wondering whether this child needed statementing. So not only might this control child have had contact with a child with a learning disability, she might also have diagnosed him!

Through closer examination of how these children had been selected, whether they were truly matched and whether there was only one variable which set them apart (contact/no contact with disability), it became clear that they were not truly matched pairs and statistical procedures involving independent samples were more appropriate.

### ***Issues related to the experimental procedure***

It was particularly disappointing that the nursery children did not perform better during this study. The results from previous work with similarly aged siblings with disabled brothers and sisters (Hames, 1998) had suggested that even from the age of 3 years, some siblings of children with severe learning disabilities were becoming aware of the cognitive limitations of their brothers and sisters. It may well be that such young children can illustrate this in a natural setting and in relation to someone with whom they have daily contact. However in the experimental setting this was more difficult, particularly as they were being asked to make judgements about a child whom they only saw for less than 3 minutes. The nursery children also found it difficult to maintain concentration during the experimental procedure (an issue which was raised in chapter 5). The high percentage of

nursery children (75%) who incorrectly said that the disabled child on the video had counted her fingers may have reflected poor attention, or lack of understanding of the task, but also indicated that these children did not have as much accurate information available to them on which to make judgements about the abilities of this child.

While there is a trend from reception to year two/three on question 6 (*"Could she build another tower with these cups?"*) and question 14 (*"Is she like a six year old or like another number?"*), and a statistical difference for question 10 (*"Could she do this jigsaw...this jigsaw?"*) for older children to recognise the disabled child's difficulties, the results from the nursery children did not fit this pattern and suggested that some of these children, at least, were answering randomly.

Since 3 year olds have been shown to be able to make similar judgements in other experiments (Diamond, 1993) it could be that the experimental setting in this study was not appropriate for these children. Chapter 5 referred to the impact of the setting upon responses of younger children, and so in order to check whether the setting had an adverse effect upon responses, two nursery children were later interviewed at home to investigate whether they would answer differently in a more naturalistic setting. This made no difference to their responses. It may have been that these youngest children needed longer to become acquainted with the child on the video and more questions could have been asked about this child's abilities, relying on questions requiring simple quantifiable responses rather than qualitative replies. It is also important to note that since the mean vocabulary age of the experimental group was particularly low (mean chronological age -

43 months, mean vocabulary age - 33 months), the results with this group may have been more in line with the hypothesis if the group had been more able.

### ***Issues related to the questionnaire***

Having completed this study, it was clear that there were a number of difficulties with question 16: "*Is (disabled child on video) like anyone else you know?*". Apart from the difficulties in verifying whether the children who were mentioned in response to this question had a learning disability or not, it became clear that learning disability was not such a salient characteristic for children as it was for the experimenter who designed the questionnaire. A few siblings of children with learning disabilities, said that the child on the video was like a child of the same gender who was in the same class or school as their brother or sister. Children who referred to the videoed child as being like other (unidentified) children whom they knew, tended to refer to children of the same gender. For children of this age, gender is a very salient feature (Diamond and Hestenes, 1996), and therefore it may have been difficult for the siblings of disabled children to identify the child on the video as being like their own brother or sister if these children were of different genders.

In relation to the use of categories, analysis was only completed on responses to questions in the first part of the questionnaire. While there were opportunities for children to give detailed explanations which could have been categorised in response to questions 26, 28, 30 and 31 (all "why" questions), these occurred after the normative concept questions



which introduced the concept of “clever”. Many of the children then went on to refer to “clever” in their responses to these subsequent questions. Since it was not possible to determine whether their responses were influenced by the introduction of “clever” by the experimenter, these responses were not included in the analysis.

### ***The results***

It is difficult to explain why the siblings were more likely to predict the correct answer to question 10 (*Could ... do this jigsaw, this jigsaw?*) than question 6 (*Could ... build a tower with these cups?*). For question 6, only siblings in reception were more likely to predict the correct response. On the other hand, the siblings as a group, those in reception and those in year 1 were more likely to predict the correct response to question 10. When adults were questioned, similar numbers correctly answered these questions (87% for question 6 and 90% for question 10) suggesting that these predictions were equally difficult (or easy) to make. Since the tower of cups was the same task as that on the video, it had been assumed by the experimenter that this would be the easier task to predict. Looking at the children’s responses, it seemed as though some of them wanted the videoed child to succeed on this task and they were quite prepared to think of reasons for achievement. In response to being asked why they thought that the videoed child could now complete a tower (question 7), responses included: *“these cups are easier (than the ones on the T V)”*, *“these cups are better”*, *“these cups are steadier”* and *“these cups have got rims on (but the ones on the TV have not)”*. In retrospect, it may have been that the difference in perceived difficulty between the two towers was not

sufficiently large for children to be confident enough to make a prediction about another child's lack of ability.

Figure 10.4 and the results of the Mann-Whitney tests clearly illustrate how siblings have a consistently higher level of understanding of the difficulties of the disabled child on the video from nursery to year one. However, by year two/three (6-7 years), children who have no contact with disability have managed to catch up so that their level of understanding as measured by these three questions is as good as children who have daily contact with a child with disabilities. This early difference in scores is particularly impressive since, as mentioned earlier, the vocabulary ages of the experimental groups were consistently (though not significantly) lower than the control groups.

While more than 50% of year two/three controls use categories 1, 2 and 12, more than 50% of year two-three siblings use these categories as well as categories 4 and 9. Category 9 represents one of the mature categories used by adults, along with category 5. Category 5 is not frequently used by children of this age, yet category 4 which is more often used by the siblings is not frequently used by adults (remembering that this was a sample of younger adults who are significantly less likely to use labels than other adults (appendix A). In the development of the categorisation (chapter 7) it was suggested that categories 1 through to 5 represent increasingly sophisticated explanations for inability to complete tasks. It would therefore be interesting to interview some slightly older children in order to examine whether category 4 might be used more frequently as a stage before using category 5. This became one of the aims of study IV.

The employment of explanations using categories 4 and 5 by children both with and without brothers or sisters with disabilities was highly illuminating. As illustrated in the text and appendix F, there were some children with vocabulary ages of less than 4 years who were able to apply these categories. Whereas previous research into young children's understanding of intelligence has tended to refer only anecdotally to children under the age of 6 referring to "can" (Cain and Dweck, 1989), the results here provide evidence of a sophisticated understanding and explanation of ability and disability being available to children of this young age. Consistent with current theories about young children's naive theories of psychology and biology (Carey, 1987; Hatano and Inagaki, 1994), it appears that there is evidence here for children, possibly as young as 3 and certainly from the age of 4, holding a coherent theory which helps them explain human behaviour. The nature of this and explanations for its development will be examined further following the later studies.

One explanation for the mature responses provided by some of the children who do not normally have contact with children with learning disabilities, is that it is not necessary to have a disabled child in the family in order to talk about issues related to ability and disability. Conversely, just because a family contains a child with a disability, it is not inevitable that disability is an issue to be discussed (as may have been the case in some of the families who would not consent to their children's involvement in the study because they did not want them to talk about disability issues). This study was based on the view that having a disabled child in the family would have a profound influence upon the

behaviour and language used within the family and that this would not be available to families who do not contain a child with a learning disability. While this may be the case in some families, it clearly is not the case within all families and may not have been a variable that distinguished all the families with disabled children from control families in this study. In order to attempt to compensate for the individual variability which occurs within families, an alternative technique would be to compare responses from members of one group which contains some people with a learning disability with responses from another group which does not contain any such members. Study III aims to do this by using the same interview and comparing children in an integrated school for children with disabilities with children in a school that has no integrated children and no children with statements.

Another variable within these families which has not been considered was that they came from a wide range of socio-economic groups. Learning disability can be due to organic and environmental causes, with the majority of severe learning disabilities due to organic origins and the majority of mild learning disabilities due to environmental causes (Clarke and Clarke, 1974). While families with children who have disabilities of organic origin tend to be distributed across all socio-economic groups, families with children whose disability is caused by environmental features generally come from the lowest socio-economic groups (Tizard, 1974; Rutter, Tizard and Whitmore, 1970). Socio-economic status has been measured in a variety of ways, though is generally assessed by income and occupation. For this study, information on occupation only was available for 41 families with disabled children and 40 control families. Occupation was classified using the Standard Occupational Classification (Office of Population Censuses and Surveys, 1991).

Classifying families according to father's occupational class (mother's in single-parent families), 23 families with disabled children (56%) were considered working class (occupational classes III-V) and 18 (44%) middle class (occupational classes I and II). In 11 of the working class families, both parents were unemployed. There were also 19 control families (48%) considered working class and in 9 of these both parents were unemployed. The impact of having a child with a learning disability may be quite different within these families - both in terms of expectations about the future and in the ways that disability is discussed. It was recognised that it was necessary to investigate the impact of socio-economic status by comparing the responses to the interview from children from different socio-economic groups. This was the main aim in study IV.

A third variable which distinguished between families with disabled members was the extent of the disabled child's disability. The sampling procedure which was used with the experimental families did not specify level of disability as it was suspected that this might result in too small a sample. Previous research (Hames, 1997) has suggested that understanding of disability may be a different process for the siblings of children with profound and severe learning disabilities: siblings of children with severe learning disabilities may develop an earlier understanding of their brothers' and sisters' cognitive disabilities. The disabled children were not known to the experimenter, and attempts to gain information from schools and parents on level of disability resulted in some disagreement, despite a very crude measure being employed. The lack of statistical findings between siblings of children with (apparently) severe and profound disabilities may well have been due to the lack of validity of the measure of severity of disability.

While there is an increasing area of research which suggests that children who have daily contact with children with disabilities are more likely to judge similar children as socially accepted (Okagaki et al., 1998), this view was not supported in the current research. There was no significant difference in the perceived social acceptability scores provided by the siblings and their controls, whether as a total group nor within age groups. Indeed, as children showed greater recognition of the disabled child's difficulties, whether they had a disabled brother or sister or not, so they were more likely to consider that the videoed disabled child would have few friends. The research carried out by Diamond and colleagues (Okagaki et al.) has been conducted with nursery children. It may be that soon after moving to a tougher life in school, children quickly become aware of who is and is not socially accepted.

This research did not address the issue of whether there were any differences in perceived social acceptance scores given by boys and by girls. While some research has suggested that older girls may be more accepting of learning disability than boys (Hazzard, 1983; McConkey, McCormack and McNaughton, 1983; Stainback and Stainback, 1982), further research has suggested that any differences in acceptance of disability is likely to occur after the age of 7 (Lewis, 1988).

The results from the assessment of normative concept were disappointing, though as mentioned in chapter 6 when this measure was introduced, even though this new assessment is an improvement on the previous one, it is probably still not sensitive enough

to accurately identify understanding of the normative concepts of difficulty and ability for all children.

## **CHAPTER 11**

### **STUDY III - INTEGRATED AND NON-INTEGRATED CHILDREN**

#### **Introduction**

The aim of this study is to assess the impact of contact with children with learning disabilities upon non-disabled children's understanding and knowledge of learning disabilities. It compares children who are and are not integrated with children with learning disabilities at school. It is hypothesised that if understanding is aided by social and environmental factors, then children who are integrated with peers with learning disabilities will develop an earlier understanding of learning disability. Since disability and ability are different points along the same continuum, then children who are integrated with peers with learning disabilities would also be expected to develop an earlier understanding of the concept of normative ability.

Study II found no significant difference in social acceptability ratings of a hypothetical child with learning disabilities, between children who had siblings with learning disabilities and those who did not. This result contrasts with those found in studies of children integrated at nursery with children with learning disabilities, where it has been suggested that integrated rather than non-integrated children are more likely to give high social ratings to children with disabilities (Diamond, Hestenes, Carpenter and Innes 1997; Okagaki, Diamond, Kontos and Hestenes, 1998). Study III further investigates the social acceptability ratings given to hypothetical children with learning disabilities by children who are and are not integrated with children with disabilities. In line with previous



published research, it is hypothesised that children who are integrated with children with disabilities will be more likely to give high social ratings to a hypothetical child with learning disabilities.

## **Method**

This research was carried out in two schools in a small rural market town. The children attending the schools came from similar social and ethnic backgrounds. The schools were of similar size (approximately 120 children), the main difference being that one had a language unit attached to the school and also children with statemented special needs were integrated into the school (this school will be referred to as the integrated school). Eleven children with speech and communication disorders attended the unit attached to this school, and were integrated at playtime and some lesson time. In addition there were four statemented children integrated into the main body of the school - two children with Down's syndrome, one with non-specific learning difficulties and one with behavioural and emotional problems. The majority of children who attended nursery at the integrated school made weekly visits to the nearby special school, and some children from the special school occasionally attended the integrated school. The second school had no statemented children attending the school and made no contact with the local special school (this school will be referred to as the non-integrated school). Research was conducted with children from reception and year one at both schools during two weeks in the second half of the autumn term. Parents were informed about the research by the heads of the schools and asked to contact the heads if they required further information. There were no parents

who expressed concern about the research, and one parent who asked for information on the outcome of the research.

### ***Participants***

There were 28 children in the reception class in the integrated school, two of whom attended the language unit. Information was gathered from 26 children who were in school on the days that the research took place. While this included one child from the language unit, his responses were not included in the analysis due to his language comprehension problems. The responses from one child who was about to be statemented were also not included due to her inability to understand many of the questions. In year one there were 28 children, including one child from the language unit and two children who had statements of educational needs. Information was gathered from 25 children in year one, including one child with a statement, though the responses from this child could not be included in the analysis due to her inability to understand the procedure. In total there were 24 children from the reception class and 24 from year one.

In the non-integrated school there were 28 children in the reception class and information was obtained from 25 of these. There were 22 children in year one who were all interviewed. One child from year one, while doing well in the vocabulary test, presented with some autistic features and found it very difficult to take the videoed child's perspective. Her responses were therefore excluded from the analysis. Final analysis included 25 children from reception and 21 from year one.

### ***Procedure***

A room which was known to the children was set aside in each school which was available throughout the period of interviewing. At the start of the interviews, the experimenter was introduced to the class by the class teacher. The experimenter explained where the children would be going and briefly described what she would be doing. Children were selected in order from the class register and accompanied to the interview room. Any children who were off school were interviewed later in the week if they returned. All children agreed to be interviewed.

The format of the interview was the same as that which was used in study II though as the whole class was aware of the interviews, it was not necessary to have such a long warm-up period. Following the interview, all children were praised on their performance and behaviour, no information was given on their peers' performance (despite repeated requests), and children were accompanied back to their class. When all children in a class had been seen, they were thanked and praised by the experimenter.

### ***Analysis***

As with study II, analysis will be with both parametric and non-parametric statistics. The reported results will be with two-tailed tests. Since this study holds a directional hypothesis, that children who are integrated with peers with learning disabilities will gain an earlier understanding of learning disability and normative concept of ability than similarly-aged children who are not integrated, then for any differences found in the

hypothesised direction using two-tailed tests, the level of significance would have been higher if one-tailed tests could have been used.

## Results

Table 11.1 gives the chronological and vocabulary ages for all the children. In tables and figures, R will refer to reception children and Y1 to children in year one, Int to the integrated school and Non-Int to the non-integrated school.

**Table 11.1. Chronological and vocabulary ages in months (means, ranges and standard deviations)**

children	chronological ages			vocabulary ages		
	mean	range	sd	mean	range	sd
R Int (n=24)	55	39-61	4.53	53	38-80	12
R Non-Int (n=25)	57	52-62	3.59	64	38-105	13.94
Y1 Int (n=24)	67	57-77	5.55	66	38-93	15.26
Y1 Non-Int (n=21)	68	63-74	4.01	68	38-86	13.13

Kolmogorov-Smirnov confirmed that these variables are normally distributed. While the variances are equal and there are no significant differences in the chronological ages of the children, two x two analysis of variance shows that vocabulary scores increase with age ( $F(1,90)=8.15$ ,  $p=0.005$ ) and is significantly higher among children from the non-integrated school ( $F(1,90)=5.13$ ,  $p<0.005$ ). This is due to a significant difference in the mean vocabulary scores between the children in reception in the integrated school and

non-integrated school ( $t(47)=-2.921$ ,  $p<0.005$ ). The implications of this will be considered in the analysis.

As in study II, analysis was divided into those questions requiring yes/no answers which could be easily quantified and questions requiring qualitative responses.

***-questions permitting quantitative analysis***

***Q.2 “Did she count all her fingers, up to ten?”***

***Q.4 “Did she build a proper tower using all the cups?”***

The majority of children understood both the visual and auditory aspects of the videos. All children recognised that the child had not built a proper tower, though nine (eight from reception) did not recall that the child had not counted her fingers properly. Six of these reception children were from the integrated school.

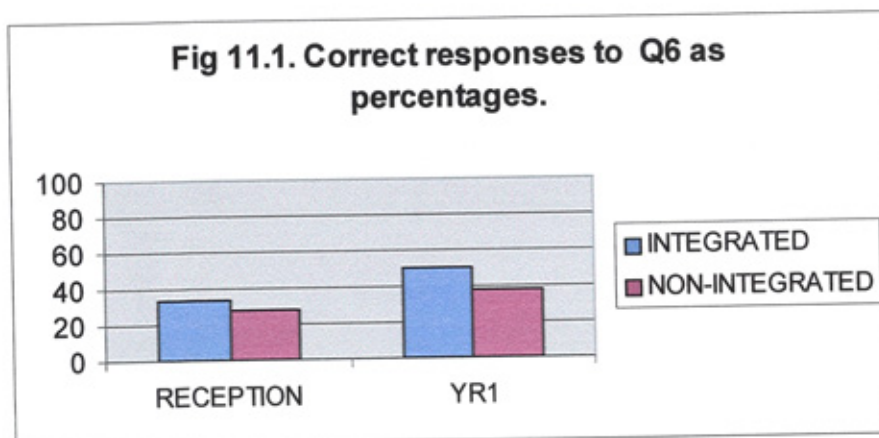
***Q.6 “Could she build a tower with these cups?”***

***Q.10 “Could she do this jigsaw...this jigsaw?”***

These questions assessed children’s ability to recognise how lack of ability could extend from one task to another. Tables 11.2 and 11.3 and figures 11.1 and 11.2 illustrate children’s responses to these questions (excluding those children who replied “don’t know”).

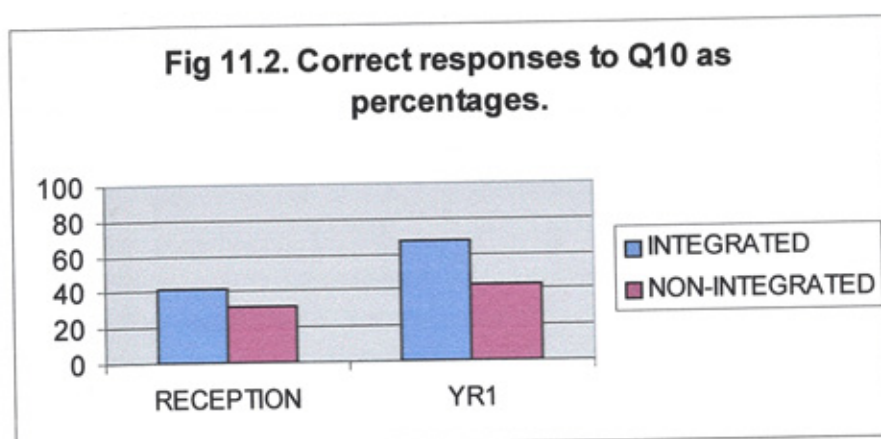
**Table 11.2. Responses to question 6: “Could she build a tower with these cups?”**

response	reception		year one	
	Int (n=24)	Non-Int (n=25)	Int (n=24)	Non-Int (n=21)
correct	8	7	12	8
incorrect	16	18	12	13



**Table 11.3. Responses to question 10: “Could she do this jigsaw...this jigsaw?”**

response	reception		year one	
	Int (n=24)	Non-Int (n=25)	Int (n=24)	Non-Int (n=21)
correct	10	8	16	9
incorrect	14	17	8	12



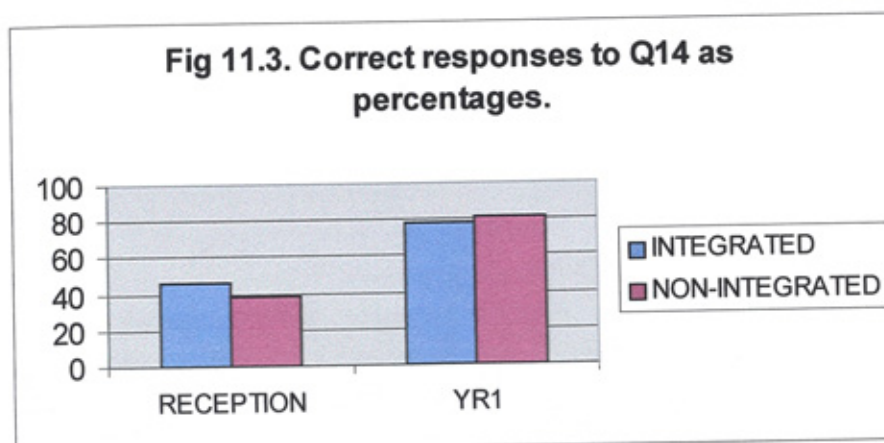
In their responses to question 6 (table 11.2), there are no significant differences between the children in each age group. For question 10 (table 11.3) and for children in year one children there is a trend for more children from the integrated school to recognise that the disabled child would not be able to complete the inset boards ( $\chi^2(1)=2.571$ ,  $p=0.109$ ).

***Q.14 “Is she like a six year old or like another number?”***

Table 11.4 and figure 11.3 compare responses from children who thought that the child on the video was like a younger child with those who thought that she was like a 6 year old or older. Responses from four children who said “different” without further explanation, or “don’t know” are excluded from the analysis. There are no significant differences between responses given by the children in each age group.

**Table 11.4. Responses to question 14: “Is she like a six year old or like another number?”**

	reception		year one	
response	Int (n=22)	Non-Int (n=24)	Int (n=23)	Non-Int (n=21)
correct	10	9	18	17
incorrect	12	15	5	4



***Q.16 "Is (child on video) like a girl/boy you know?"***

As the children in the integrated school had more contact with disability, it was expected that more of these children would associate the disabled child on the video with another disabled child. Three of the reception children and nine of the children from year one described other disabled children. Only one child from the non-integrated school mentioned other less able children. One reception child and two year one children from the integrated school, and one reception child and four year one children from the non-integrated school thought that the child on the video was like a much younger child.

The analysis so far suggested that there were no significant differences in responses between the children from the integrated and non-integrated schools. However, as mentioned in the method, there was a significant difference in the mean vocabulary scores between the children in reception in the integrated and non-integrated schools, with the reception children in the integrated school scoring significantly less well. It was hypothesised that those children who scored badly on the vocabulary scale may have had difficulties understanding the concepts involved in the questionnaire. Examination of the graphs below illustrates that despite the fact that Kolmogorov-Smirnov indicated that the vocabulary ages were normally distributed, there is an unexpectedly large group of children with vocabulary ages below 44 months in reception. As these children would be expected to have difficulty with the interview, similar to those experienced by the nursery children in study II, it was decided to remove all those children who had vocabulary ages of less than 44 months and repeat the analyses for questions 6, 10 and 14.



Fig 11.4. Distribution of vocabulary ages for reception children

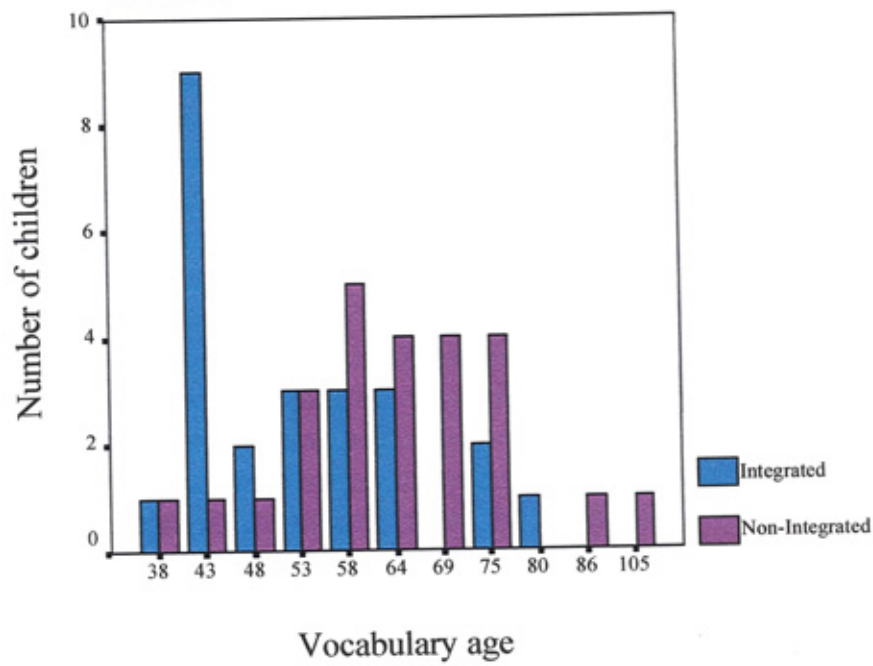
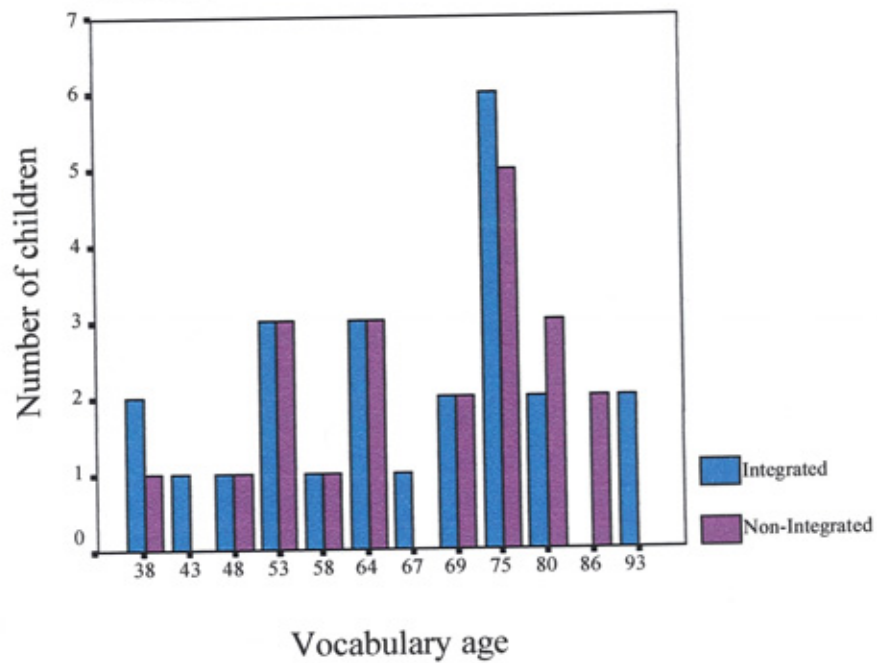


Fig 11.5. Distribution of vocabulary ages for year 1 children



Analysis now involved 14 children in the reception class in the integrated school and 23 in the non-integrated school and 21 in year one in the integrated school and 20 in the non-integrated school. Table 11.5 gives the chronological and vocabulary ages for these children.

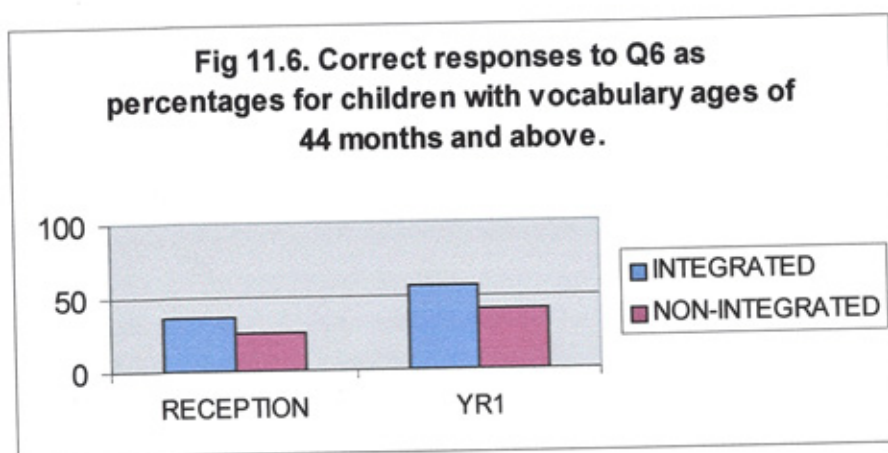
**Table 11.5. Chronological and vocabulary ages in months for children with vocabulary ages of 44 months and above (means, ranges and standard deviations)**

children	chronological ages			vocabulary ages		
	mean	range	sd	mean	range	sd
R Int (n=14)	56	51-61	2.84	61	48-80	10.14
R Non-Int (n=23)	57	52-62	3.57	66	48-105	12.52
Y1 Int (n=21)	67	57-77	5.66	69	48-93	12.28
Y1 Non-Int (n=20)	68	63-74	4.10	69	48-86	11.53

Analysis of variance confirms that vocabulary scores increase with age ( $F(1,92)=7.35$ ,  $p<0.01$ ). While the children from reception in the non-integrated school continue to score more highly on the vocabulary test, this difference is no longer significant. The three tables and figures below give these children's responses to questions 6, 10 and 14. Two children from reception in the integrated school and one from the non-integrated school and one child from year one in the integrated school were not able to answer question 14.

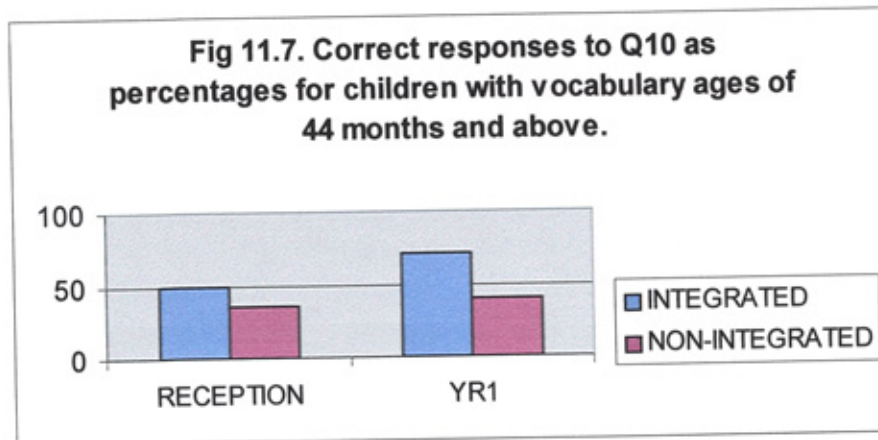
**Table 11.6. Responses to question 6 from children with vocabulary ages of 44 months and above: “Could she build a tower with these cups?”**

	reception		year one	
response	Int (n=14)	Non-Int (n=23)	Int (n=21)	Non-Int (n=20)
correct	5	6	12	8
incorrect	9	17	9	12



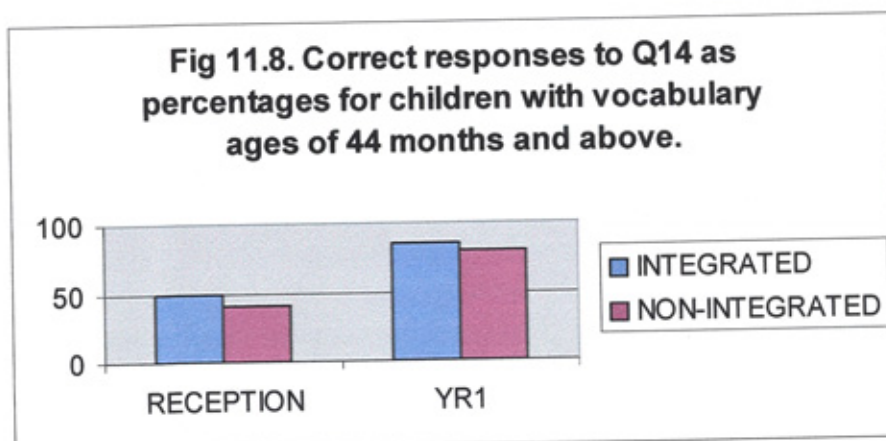
**Table 11.7. Responses to question 10 from children with vocabulary ages of 44 months and above: “Could she do this jigsaw...this jigsaw?”**

	reception		year one	
response	Int (n=14)	Non-Int (n=23)	Int (n=21)	Non-Int (n=20)
correct	7	8	15	8
incorrect	7	15	6	12



**Table 11.8. Responses to question 14 from children with vocabulary ages of 44 months and above: *“Is she like a six year old or like another number?”***

	reception		year one	
response	Int (n=12)	Non-Int (n=22)	Int (n=20)	Non-Int (n=20)
correct	6	9	17	16
incorrect	6	13	3	4



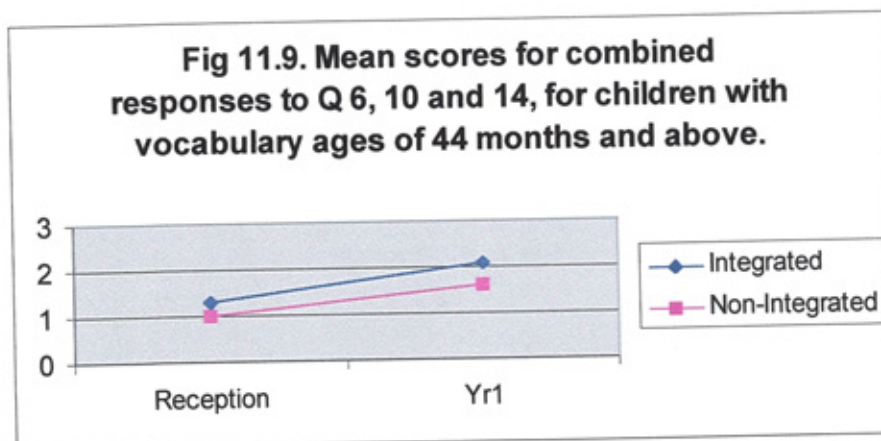
Repeating the analyses for questions 6 and 14, while the trends in the hypothesised direction are heightened, these differences between the children in the integrated and non-integrated schools are still not significant. For question 10, there is no significant

difference between the reception children. Amongst the year one children, significantly more children from the integrated school now recognise that the disabled child would not be able to complete these other tasks ( $\chi^2(1)=4.108$ ,  $p<0.05$ ).

Overall level of understanding among children with vocabulary ages of 44 months and above was assessed by combining responses to questions 6, 10 and 14. By giving each child a score of 1 for a correct response to any question and 0 for an incorrect response, this produced an interval scale which ranged from 0 (little understanding) to 3 (high level of understanding). Frequencies of children's new combined scores are illustrated in table 13.9 and the mean scores for each age group in figure 11.9. Standard deviations are: R Int=1.38, R Non-Int=1.17, Y1 Int=0.89, Y1 Non-Int=0.94.

**Table 11.9. Frequencies of combined responses to questions 6, 10 and 14 for children with vocabulary ages over 43 months (*higher score = greater understanding*)**

response	reception		year one	
	Int (n=14)	Non-Int (n=23)	Int (n=21)	Non-Int (n=20)
0	7	11	1	1
1	0	5	4	11
2	3	3	8	3
3	4	4	8	5



Kolmogorov-Smirnov confirmed that this variable is normally distributed. As before, both parametric and non-parametric statistics will be used in analysis of the results. Using parametric tests, analysis of variance (age group by school) of differences in the combined understanding variable (for children with vocabulary ages of 44 months and above) shows that there is a significant difference between the mean scores of the two age groups ( $F(1,74)=7.14, p<0.005$ ) but not between the mean scores of the children from the two schools. T-tests indicate that there is a trend for integrated children in year one to show greater understanding of the disabled child's difficulties ( $t(39)=1.73, p=0.091$ ). This is confirmed using non-parametric analysis, again with a tendency for integrated children in year one to show greater understanding of the disabled child's difficulties (Mann-Whitney=145.5,  $p=0.076$ ).

*-questions requiring qualitative analysis*

**Q.1 "Tell me all the things that are different between them"**

**Q.3 "Why didn't she (count all her fingers)?"**

***Q.5 “Why didn’t she (build a proper tower)?”***

***Q.7 “Why not (build a tower with these cups)?”***

***Q.9 “How come you can (build a tower) and she can’t?”***

***Q.11 “Why not (do this jigsaw...this jigsaw)?”***

***Q.13 “How come you can (do these jigsaws) and she can’t?”***

***Q.15 “What can that number do?”***

Responses to these questions were analysed according to the categorisation devised for study II and described below in table 11.10. As in study II, children’s responses to these questions have been combined and are presented in table 11.11 and responses from the group of more able children in table 11.2 and figures 11.10 and 11.11. Children could use more than one category.

**Table 11.10. Children’s explanations for ability and lack of ability**

1.	Description of appropriate/ - inappropriate task response
2.	Task specific ability/lack of ability
3.	Associations
4.	General description of ability/lack of ability
5.	Mental processes
6.	Attention
7.	Motivation
8.	Experience
9.	Task difficulty
10.	Age
11.	Behaviour
12.	Miscellaneous



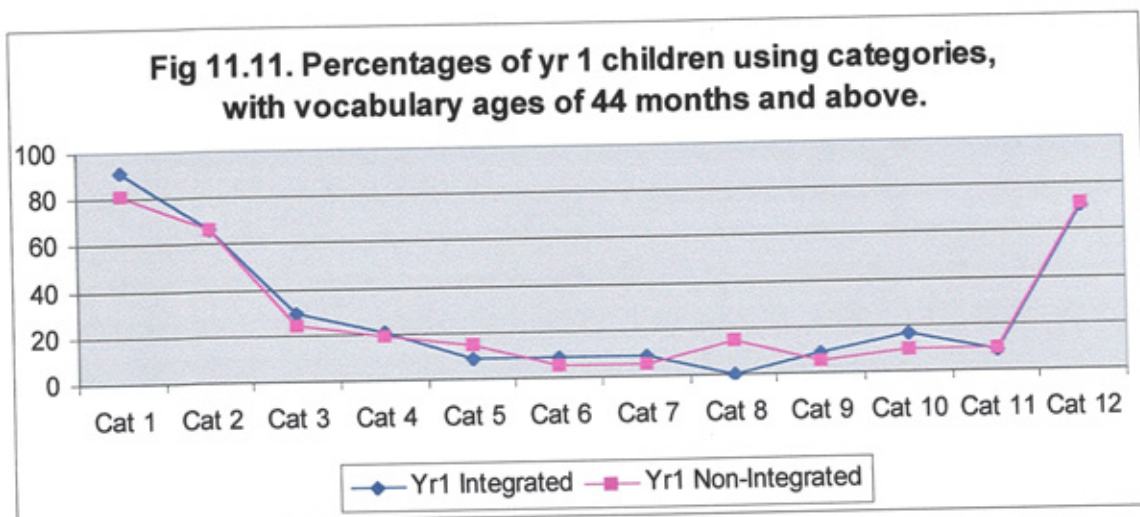
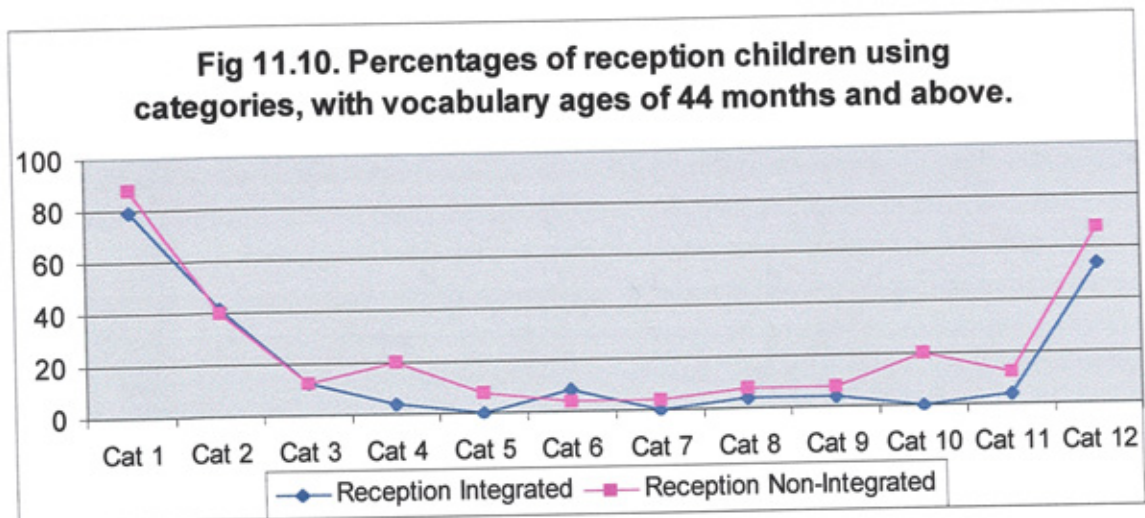
**Table 11.11. Children's percentage use of categories to questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	reception		year one	
	int sch (n=24)	non-int sch (n=25)	int sch (n=24)	non-int sch(n=21)
1	79	88	92	81
2	42	40	67	67
3	13	12	29	24
4	4	20	21	19
5	-	8	8	14
6	8	4	8	5
7	-	4	8	5
8	4	8	-	14
9	4	8	8	5
10	-	20	17	10
11	4	12	8	10
12	54	68	71	70

**Table 11.12. Percentage use of categories by children with vocabulary ages of 44 months and above to questions 1, 3, 5, 7, 9, 11, 13 and 15 (combined).**

category	reception		year one	
	int sch (n=14)	non-int sch (n=23)	int sch (n=21)	non-int sch(n=20)
1	71	91	100	85
2	50	44	67	65
3	21	13	29	20
4	7	22	24	20
5	-	9	10	15
6	14	4	10	5
7	-	4	10	5
8	7	9	-	15
9	7	4	10	5
10	-	17	19	10
11	7	4	10	10
12	50	70	67	70





Among the more able group of children, there is little difference in children's use of categories, at reception age and year one. Similar to the year one and year two/three control children in study II, 50% or more of all children in year one in this study use categories 1, 2 and 12.

### ***Social acceptance***

Children's rating of the perceived acceptability of the disabled child could range from a score of 6 to 12. Analysis compares children who rated the disabled child as having few friends (low score of 6 or 7) with those who rated the disabled child as having many friends (high score of 11 or 12). This excludes those children who gave intermediate scores and may not have understood the underlying purpose of the questionnaire (as discussed in study II). Tables 11.13 and 11.14 compare results from all children and from those with measured vocabulary ages of 44 months and above. The data from one child in reception in the integrated school is missing from the first table.

**Table 11.13. Social acceptability as perceived by all children**

children	low score (few friends)	high score (many friends)
R Int (n=23)	4 (17%)	7(30%)
R Non-Int (n=25)	8 (32%)	4 (16%)
Y1 Int (n=24)	13 (54%)	6 (25%)
Y1 Non-Int (n=21)	11 (52%)	6 (29%)

**Table 11.14. Social acceptability, perceived by children with vocabulary ages of 44 months and above**

children	low score (few friends)	high score (many friends)
R Int (n=14)	3 (21%)	5 (36%)
R Non-Int (n=23)	8 (35%)	3 (13%)
Y1 Int (n=21)	13 (62%)	5 (24%)
Y1 Non-Int (n=20)	12 (60%)	6 (30%)

While in reception, more children in the integrated school perceive the disabled child as having many friends and more children in the non-integrated school perceive the disabled

child as having few friends, this difference is not significant. Among the children who are one year older, the scores from both schools are very similar.

Although not one of the hypotheses of this study, children's responses were also analysed to examine whether there is any relationship between children's understanding of the disabled child's difficulties (as measured by combined responses to questions 6, 10 and 14) and the extent to which this child is judged to be socially accepted. Correlating all responses to the social acceptance questions and the combined level of understanding questions, there is a significant negative correlation between these variables (Spearman's  $\rho = -0.328$ ,  $p < 0.005$  for all children, Spearman's  $\rho = -0.320$ ,  $p < 0.005$  for children with vocabulary ages of 44 months and above) indicating that children who have a good understanding of the disabled child's difficulties also think that this child will have few friends.

### *Normative concept of ability*

Only two children in reception and one in year one in the integrated school and two in year one in the non-integrated school obtained a full understanding of the normative concept of ability. These figures are too few to complete meaningful analysis between the groups.

Relationship between overall level of understanding of the disabled child's difficulties (as measured by combined responses to questions 6, 10 and 14) and achievement of normative concept of ability was examined by correlating all responses to the normative concept questions and the combined level of understanding questions, resulting in a small but

significant correlation (Spearman's  $\rho=0.220$ ,  $p<0.05$  for all children, Spearman's  $\rho=0.216$ ,  $p=0.059$  for children with vocabulary ages of 44 months and above) which indicates that children who have greater understanding of the disabled child's difficulties are more likely to have developed a normative concept of ability.

### ***Identification with the child on the video***

After answering the questions on normative concept of ability children were asked to indicate which jigsaw they thought they could complete, which they thought the two children on the video could complete, and to explain their choices. Tables 11.15 and 11.16 compare children who identified themselves with the non-disabled child (S/ND), children who identified themselves with the learning-disabled child (S/LD), and children who gave other responses. One child in reception in the integrated school was unable to complete this question.

**Table 11.15. Identification with children on video by all children**

children	S/ND	S/LD	other
R Int (n=23)	8 (35%)	5 (22%)	10 (43%)
R Non-Int (n=25)	14 (56%)	5 (20%)	6 (24%)
Y1 Int (n=24)	8 (33%)	5 (21%)	11 (46%)
Y1 Non-Int (n=21)	11 (52%)	4 (19%)	6 (29%)

**Table 11.16. Identification with children on video by children with vocabulary ages of 44 months and above**

children	S/ND	S/LD	other
R Int (n=13)	6 (46%)	1 (7%)	6 (46%)
R Non-Int (n=23)	13 (57%)	5 (22%)	5 (22%)
Y1 Int (n=21)	6 (29%)	5 (24%)	10 (48%)
Y1 Non-Int (n=20)	11 (55%)	3 (15%)	6 (30%)

Comparing all the integrated with all the non-integrated children, the non-integrated children are more likely to identify themselves with the non-disabled child than make other comparisons ( $\chi^2(1)=3.888$ ,  $p<0.05$ ). Comparing all the integrated with the non-integrated children with vocabulary ages of 44 months and above, the trend is in the same direction ( $\chi^2(1)=3.211$ ,  $p=0.073$ ). This result is difficult to explain and unexpected. Study II found that older children and children who had more understanding of the disabled child's difficulties, were more likely to compare themselves with the non-disabled child. In this study, children who had more understanding of the disabled child's difficulties were also more likely to compare themselves with the non-disabled child (Spearman's rho 0.289,  $p<0.01$ ).

## Discussion

### *Issues related to sampling*

One possible variable which was not investigated was whether the parents of the children involved in this study had made a positive decision about their children's attendance at an integrated or non-integrated school. It may be that parents who choose to send their

children to an inclusive school have more positive attitudes towards people with disabilities than parents who do not make this decision. While it had been assumed that the only variable which distinguished the experimental and control groups was contact at school with children with disabilities, it may have been that there were also pre-existing differences in attitudes towards disability between the parents of the children who attended the two schools. Parental attitudes could in turn have an influence upon their children's attitudes and behaviour. Certainly, other research has shown how parents' beliefs and children's attitudes towards disability are positively related to children's contacts with peers with disabilities during free play periods; the children of parents with more positive attitudes make more contacts with disabled children (Okagaki, Diamond, Kontos and Hestenes, 1998).

A more fundamental issue was whether the integrated school was truly a more "inclusive" school. Ainscow (1995) suggests that whereas integration is about "additional arrangements" in schools which themselves remain essentially unchanged, inclusion on the other hand implies a more radical set of changes through which schools come to embrace all children. While there were children attending the language unit in the integrated school and other children with special needs integrated into the main body of the school, as well as contacts made with the local special needs school, discussion with the head of the school once the study was completed indicated that no particular procedures were in place in the school to make the children particularly aware and knowledgeable about children with special needs. This point has already been made by Maras and Brown to account for differences which they found in their studies (Maras and Brown, 1996; 2000). Their 1996

study illustrated how children's knowledge of disabilities became much more sophisticated throughout a three-month structured integration programme involving small groups of mainstream children and children with severe learning disabilities. However their 2000 study found little difference in knowledge of disability between children who had had "categorised" contact with children with various disabilities and those who had had no contact at all. While there had been more opportunities for discussion and involvement in the schools in their first study, class sizes in the latter study were large, there was little opportunity for frequent and co-operative learning activities, children were given little information about the nature of their peers' disabilities, and generally felt uncomfortable about meeting with them. Despite disabled children being integrated into the schools in their 2000 study, Maras and Brown suggest that practicalities meant that these schools were not truly inclusive resulting in children being less likely to have increased knowledge of disability.

A similar point relates to the non-integrated school. While this school had no statemented children attending, this does not necessarily mean that there were no children with special needs attending the school. Ainscow (1994) has identified the importance of taking account of what he has referred to as the "hidden population" of pupils with special needs. These are children who may not have significant disabilities but nevertheless experience difficulties in learning. The lack of statements may also have reflected the school's attitude towards statementing and a wish not to label children. In addition, while this school had no formal contact with the local special school, there may still have been inclusive practices operating.

### ***The results***

While the group of more able children from the integrated school were more likely to get questions 6 and 14 correct, neither of these differences was significant. Once again, question 10 (*“could she do this jigsaw ... this jigsaw?”*) was the question which significantly differentiated the two groups, with year one children who had contact with children with disabilities being more likely to answer this question correctly, though this difference was not as significant as it had been in study II. For the combined understanding variable, it was only among year one children that there was a trend in the hypothesised direction. It may have been that the extent of these children’s contact with children with disabilities was less intense than that which occurs between siblings and was therefore not sufficient to create as great a difference in these young children’s understanding of disability.

Once again, comparing these results with those obtained from study II, there were no differences between the children from the two schools in the categories which were used (i.e. no trends in greater use of particular categories and no overall difference in the numbers of categories used by 50% or more of children). So while children in the integrated school were more (though not always significantly) likely to be able to predict the behaviour of the disabled child on the video, this was not accompanied by an increased ability to explain the child’s behaviour. It may be that while the siblings of children with learning disabilities in study II had opportunities at home to discuss and overhear conversations about their disabled brother or sister, and learn to understand him or her, these opportunities were not as readily available to children observing peers at school.



While they may have been able to observe peers, it is probably quite likely that the depth of conversations that could be available in the home situation would not be available in the school setting.

Maras and Brown's (1992) findings may be of interest here. They found that a group of young school-age children who had "categorised" contact with a group of peers with learning disabilities (i.e. where integrated children with disabilities were clearly identifiable to their mainstream peers as being members of a particular group), subsequently rated children with physical disabilities, learning disabilities and hearing impairment, as having similar degrees of hearing difficulty. Others who had either had no contact or "decategorised" contact (i.e. references to integrated children with disabilities as being members of a particular group were not made) with children with learning disabilities were able to appropriately rate these disabled groups on their ability to hear. It was as though those children who were integrated with a group of children who were identified as different along an abstract dimension, when asked to make judgements of another abstract attribute, collapsed all categories of disability into one and attributed the same degree of hearing disability to them all. The integrated school in this study practised a certain degree of "categorised" contact, particularly regarding the children in the language unit. While the integrated children in this study did not seem as confused as those who had undergone "categorised" contact in Maras and Brown's study, contact with children with learning disabilities had not been sufficient for them to increase their understanding of disability significantly.

It was interesting to find that by the time children had been at school for two years, the social acceptability ratings of a hypothetical disabled child given by the children from the integrated and non-integrated schools were identical. As mentioned in study II, research which suggested that contact with children with disabilities resulted in higher social acceptance has been conducted with much younger children (Okagaki et al., 1998). In addition, differences in the policies and procedures of integrated educational provision for children with special needs in Britain and the USA (Florian and Pullin, 2000) hinders the direct replication of findings. While the children in the integrated school studied here may still have been sympathetic towards children with learning disabilities (and this was the view held by the head teacher of this school), it seemed that they recognised that children with learning disabilities have more difficulty integrating with others and do tend to become isolated (Guralnick and Groom, 1987; Guralnick, 1990). It would be interesting to investigate whether, as children become older and more knowledgeable about the implications of learning disability, whether this has any impact upon ratings of social acceptability. It will be possible to investigate this in study IV.

While it was not possible to investigate the impact of integration upon normative concept of ability, it was confirmed that children who have greater understanding of disability are more likely to have achieved the normative concept of difficulty and ability.

## **CHAPTER 12**

### **STUDY IV - WORKING AND MIDDLE CLASS CHILDREN**

#### **Introduction**

Following completion of study II, two areas were identified which required further investigation and which will be examined here. One was the effect of social background on responses to the questionnaire and the other was the need to investigate responses of older children to the questionnaire, in particular looking at their use of categories 4 and 5.

It was clear in study II that the children came from very differing social backgrounds. While nearly a third of the siblings came from middle class backgrounds, approximately a quarter came from families where both parents were unemployed. Some of the schools which the children attended were in extremely deprived areas. It may be that socio-economic status has some impact upon understanding of disability. While searches revealed no studies which have investigated the impact of socio-economic status upon the concept of ability, there has been some research into its effect on certain areas of cognition. Children from middle class backgrounds have been found to perform better on conservation tasks (Roazzi and Bryant, 1997), in understanding of false belief (Cutting and Dunn, 1999), and emotional understanding (Dunn, Brown, Slomkowski, Tesla and Youngblade 1991; Cutting and Dunn). Hughes, Deater-Deckard and Cutting (1999) found strong correlations between parental affect and control, and socio-economic status, and reported that parental behaviours were significant predictors of children's theory-of-mind performance. Socio-economic

status has also been found to be associated with performance on the British Picture Vocabulary Scale (Cutting and Dunn; Hughes, et al).

Parental expectations could play some part in understanding of disability. It is likely that the expectations of children will vary between middle and working class parents. Middle class parents may be more likely to expect their children to go on to further education and take up professional careers - expectations which are more likely to be shattered by the arrival of a child with a learning disability. This shattering of expectations could then lead to different discussions within the family household. Overhearing, or being involved in these discussions, could lead to differential understanding of learning disability. While it has not been possible here to separate the impact of socio-economic status from parental expectations, it is hypothesised that the different social environments of children will have some impact upon understanding of learning disability.

Study IV also allows for analysis of differences between children from working and middle class backgrounds in their perceived social acceptance of disabled children and their achievement of normative concept of ability. It is hypothesised that there will be no differences in the perceived social acceptance of a hypothetical child with a learning disability. However, since studies II and III found positive relationships between children's level of understanding of disability and attainment of normative concept of ability, it is hypothesised that similar results will be found in this study.

Along with the explanations for learning disability given by adults, the responses of the older children in this study can be used in the development of the categorisation of

understanding of learning disability. In particular, study II questioned use of categories 4 and 5 by older children.

## **Method**

Children from two different schools in a large city were interviewed. School W was based in a deprived ward of the city with 13.5% unemployment rate. One hundred of the 224 children in the school were entitled to free school meals at the time of the study. School M was in a professional area of the city with 3.6% unemployment rate. Three of the 147 children in the school were entitled to free school meals.

## ***Participants***

Children from year two (6-7 year olds) and year four (8-9 year olds) from both schools were interviewed. There were 15 children from year two and 15 children from year four in school W and 15 children from year two and 14 children from year four in school M.

## ***Procedure***

The children were interviewed by two undergraduate psychology students who were naive to the aims of the study though they knew that children were being asked to give their explanations for why the second child on the video did not complete tasks. Both interviewers had experience of working with young school-age children. They were trained in administration of the interview and recorded children's responses verbatim. The procedure they used was the same as that in study III except that the video was shown straight through without pauses to check on children's observations. These

interruptions in the video had been introduced previously for younger respondents to ensure that they were maintaining concentration. As the children in this study were older and considered to have better concentration, it was decided not to interrupt the video. The children were drawn sequentially from the register and seen in a room close to their classroom. The questionnaire was the same as the one used in studies II and III. The short form of the British Picture Vocabulary was administered.

## Results

The children's chronological and vocabulary ages are given in table 12.1 below.

**Table 12.1. Chronological and vocabulary ages in months (means, ranges and standard deviations)**

children	chronological ages			vocabulary ages		
	mean	range	sd	mean	range	sd
Y2 sch W (n=15)	87	83-92	3.14	94	64-131	20.05
Y2 sch M (n=15)	86	81-90	2.46	99	38-122	20.12
Y4 sch W (n=15)	111	106-118	3.71	102	64-131	17.37
Y4 sch M (n=14)	109	107-117	3.30	129	86-177	27.91

Kolmogorov Smirnov indicates that all scores are normally distributed within groups. Two-way analysis of variance (school x age group) showed that there is a significant difference in vocabulary ages between the age groups ( $F(1,57)=10.01$ ,  $p=0.003$ ) and also in vocabulary ages between the children from the two schools ( $F(1,57)=6.07$ ,  $p<0.05$ ). While the mean vocabulary ages and standard deviations of the children in years two are similar, between the year four children there is a much greater difference between the standard deviation scores with the children from school M having a significantly higher mean vocabulary age ( $t(27)=3.15$ ,  $p<0.005$ ).

*-questions with quantifiable responses*

***Q.2 “Did she count all her fingers, up to ten?”***

***Q.4 “Did she build a proper tower using all the cups?”***

Table 12.2 gives the percentages of children correctly answering questions 2 and 4. There were no significant differences between children in each age group. The lower percentages of year two children who correctly answered these questions compared to studies II and III was probably due to the video not being stopped whilst it was viewed.

**Table 12.2. Correct responses to questions 2 and 4 (as percentages)**

Q.	year 2		year 4	
	school W (n=15)	school M (n=15)	school W (n=15)	school M (n=14)
2	53	73	100	86
4	87	80	100	100

***Q.6 “Could she build a tower with these cups?”***

***Q.10 “Could she do this jigsaw...this jigsaw?”***

***Q.14 “Is she like a six year old or like another number?”***

Table 12.3 gives the percentages of children correctly answering questions 6, 10 and 14.

**Table 12.3. Correct responses to questions 6, 10 and 14 (as percentages)**

Q.	year 2		year 4	
	school W (n=15)	school M (n=15)	school W (n=15)	school M (n=14)
6	73	80	87	79
10	47	80	60	86
14	47	100	80	93

In response to question 6, the children within each age group answered similarly, with most children answering correctly. In response to question 10, and between children in year two, there is a trend for more children from school M to get this question correct ( $\chi^2(1)=3.589$ ,  $p=0.058$ ). In response to question 14, all of the children from year two in school M recognised that the disabled child was like a much younger child, but only half of the children from school W recognised this. The majority of year four children from both schools recognised the disabled child's immaturity.

***Q.16 "Is (child on video) like a girl/boy you know?"***

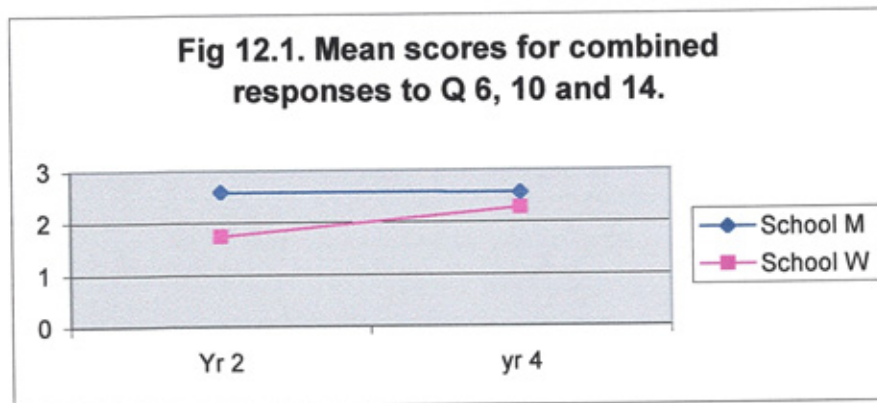
One year two child and one child from year four were able to clearly describe another, similarly disabled child. While five other children talked of knowing similar children, it was not possible to validate their responses.

Overall level of understanding was assessed by combining responses to questions 6, 10 and 14. By giving each child a score of 1 for a correct response to any question and 0 for an incorrect response, this produced an interval scale which ranged from 0 (little understanding) to 3 (high level of understanding). The frequency of children's scores on this new variable are illustrated in table 12.4 and the mean scores for each group in figure 12.1. The standard deviations are: Y2 schW=0.96, Y2 schM=0.50, Y4 schW=0.88, Y4 schM=0.65.



**Table 12.4. Frequencies of combined responses to questions 6, 10 and 14 (*higher score = greater understanding*)**

response	year 2		year four	
	school W (n=15)	school M (n=15)	school W (n=15)	school M (n=14)
0	2	-	-	-
1	3	-	4	1
2	7	6	3	4
3	3	9	8	9



Kolmogorov-Smirnov confirmed that this variable is normally distributed. Once again, parametric and non-parametric procedures have been used to analyse this variable. Using parametric tests, analysis of variance (age group by school) of differences in the combined understanding variable shows that there is a significant difference between the mean scores of the children from the two schools ( $F(1,55)=8.45$ ,  $p=0.005$ ). Even when controlling for the differences in vocabulary ages between the children in the two schools, analysis of co-variance indicates that there is still a significant difference in combined understanding scores between the children from different social backgrounds ( $F(1,54)=5.06$ ,  $p<0.05$ ). T-tests between children at each age group reveal significantly greater scores on the combined understanding variable for the children in year two ( $t(28)=3.09$ ,  $p=0.005$ ). Similar results in differences on the combined

variable are obtained using non-parametric tests (Mann-Whitney=283.5,  $p<0.05$  between scores from all the children from the two schools, Mann-Whitney=52.5,  $p<0.01$  between scores from children in year two).

***- questions requiring qualitative analysis***

***Q.1 “Tell me all the things that are different between them”***

***Q.3 “Why didn’t she (count all her fingers)?”***

***Q.5 “Why didn’t she (build a proper tower)?”***

***Q.7 “Why not (build a tower with these cups)?”***

***Q.9 “How come you can (build a tower) and she can’t?”***

***Q.11 “Why not (do this jigsaw...this jigsaw)?”***

***Q.13 “How come you can (do these jigsaws) and she can’t?”***

***Q.15 “What can that number do?”***

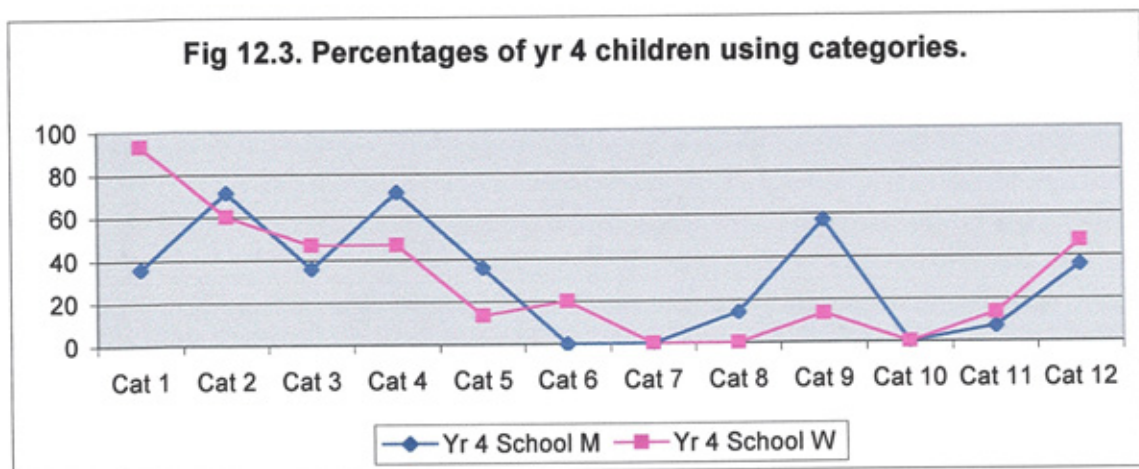
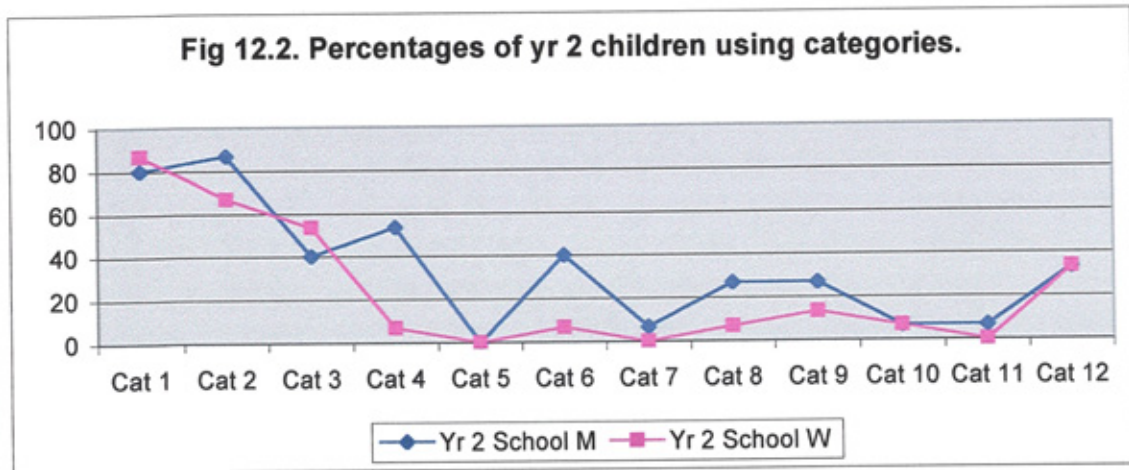
As before, children’s responses to these questions have been combined and categorised according to the categorisation devised for study II and described below in table 12.5. A new category 13 has been incorporated which refers to explanations for inability to complete tasks based on the disabled child being younger than the observing child. The children in this study are older than the vast majority of children in the previous studies and so this category was not available to them. Table 12.6 and figures 12.2 and 12.3 compare responses from the children from the different age groups and different schools.

**Table 12.5 Children's explanations for ability and lack of ability**

1.	Description of appropriate/ - inappropriate task response
2.	Task specific ability/lack of ability
3.	Associations
4.	General description of ability/lack of ability
5.	Mental processes
6.	Attention
7.	Motivation
8.	Experience
9.	Task difficulty
10.	Age
11.	Behaviour
12.	Miscellaneous
13.	"Is younger than me"

**Table 12.6. Children's percentage use of categories to questions 1, 3, 5, 7, 9, 11, 13 and 15.**

category	year 2		year 4	
	school W (n=15)	school M (n=15)	school W (n=15)	school M (n=14)
1	87	80	93	36
2	67	87	60	71
3	53	40	47	36
4	7	53	47	71
5	-	-	13	36
6	7	40	20	-
7	-	7	-	-
8	7	27	-	14
9	13	27	13	57
10	7	7	-	-
11	-	7	13	7
12	33	33	47	36
13	40	20	33	7



Use of categories at each age is similar, though there is a significant difference in use of category 9 for year four children, with more children from school M showing use of this category (Fisher's exact,  $p=0.021$ , two-tailed test). In year 2, 50% or more of children in school W are using categories 1, 2 and 3 while a similar percentage from school M are using categories 1, 2 and 4. By year four, 50% or more of children in school W are using categories 1 and 2 while a similar percentage from school M are using categories 2, 4 and 9.

### ***Social acceptance ratings***

Table 12.7 describes children's ratings of the perceived social acceptability of the hypothetical disabled child. As with studies II and III, ratings are reported for those children who rated the disabled child as having few friends (score of 6 or 7) and children who rated the disabled child as having many friends (score of 11 or 12). Only two children from year two and none from year four gave intermediate scores. This lends support to the suggestion in the piloting of this measure, that intermediate scores tend to be given by children who do not understand the underlying concept being measured, often younger children. There were no differences in the pattern of responses given by children from the two schools, and by year four, all children thought that the hypothetical disabled child would have few friends.

**Table 12.7. Perceived social acceptability of disabled child**

children	low score (few friends)	high score (many friends)
Y2 sch W (n=15)	14 (93%)	-
Y2 sch M(n=15)	13 (87%)	1 (6%)
Y4 sch W(n=15)	15 (100%)	-
Y4 sch M(n=14)	14 (100%)	-

Although not one of the hypotheses of this study, children's responses were also analysed to examine whether there is any relationship between children's understanding of the disabled child's difficulties (as measured by combined responses to questions 6, 10 and 14) and the extent to which this child is judged to be socially accepted. Correlating all responses to the social acceptance questions and the combined level of understanding questions, there is a significant negative correlation among children in school W (Spearman's  $\rho = -0.321$ ,  $p < 0.01$ ) suggesting that children who have a good understanding of the disabled child's difficulties also thought that this child would have

few friends. (It was not possible to complete a similar correlation for children in school M as all the children had indicated that the disabled child would have few friends.)

### ***Normative concept of ability***

Ten children from year two (67%) in school M illustrated full understanding of normative concept of ability while only one child from year two in school W could correctly answer these questions. By year four, 10 children (71%) from school M and seven (47%) from school W could answer these questions correctly. The difference between the year two children is significant ( $\chi^2(1)=11.627$ ,  $p<0.001$ ) and there is a trend in the same direction for the children in year four ( $\chi^2(1)=1.830$ ,  $p=0.176$ ). There is a strong correlation between attainment of normative concept and understanding of learning disability for all children (Spearman's  $\rho=0.45$ ,  $p<0.001$ ).

### ***Identification with the child on the video***

After answering the questions on normative concept of ability children were asked to indicate which jigsaw they thought they could complete, which they thought the two children on the video could complete, and to explain their choices. The table below compares children who identified themselves with the non-disabled child (S/ND), children who identified themselves with the learning-disabled child (S/LD), and children who gave other responses. The data from one child in year two in school M is missing.

**Table 12.8. Identification with children on video**

children	S/ND	S/LD	other
Y2 sch W (n=15)	9 (60%)	2 (13%)	4 (27%)
Y2 sch M (n=14)	-	-	14 (100%)
Y4 sch W (n=15)	4 (27%)	7 (47%)	4 (27%)
Y4 sch M (n=14)	1 (7%)	1 (7%)	12 (86%)

There are no differences between the responses from all year two and all year four children. There is a significant difference between the schools with children from school W being more likely to make associations between themselves and the non-disabled child than other associations ( $\chi^2(1)=12.504$ ,  $p<0.005$ ). Differences between the children in each age group are not valid due to the low numbers in school M associating themselves with the non-disabled child.

## **Discussion**

The aims of this study were to look at children of different ages and from different social backgrounds, and compare their understanding of learning disability, perceived social competence of disabled children and achievement of normative concept of ability. Each of these will be dealt with in turn.

Understanding of learning disability was measured by quantitative and qualitative responses to questions. In response to quantitative questions, middle class children were significantly more likely than working class children to illustrate a higher level of overall understanding of the disabled child's difficulties as measured by combined responses to questions 6, 10 and 14. This variable distinguished the year two children, though there were no differences between the year four children. Conversely, for

qualitative questions, there were no significant differences between the year two children. The year four children from the middle class school were significantly more likely to use category 9 than their working class peers. This was identified as one of the mature categories used by 50% or more of adults. There were also more categories used by 50% or more of year four children from the middle class school. In other words, in year two, where there was little difference in vocabulary ages, the middle class children were better able to answer the quantitative questions. However, by year four when the children from the middle class school had significantly higher vocabulary scores, there were no differences in responses to quantitative questions but the middle class children were better at responding to the questions requiring qualitative replies.

This suggests that for children up to year two, the maximum age of participants in study II, there is no evidence that social class has an impact upon responses to qualitative questions but that middle class children are more likely to accurately respond to the quantitative questions. Among the older children, those from a middle class background were better able to explain why a child with a learning disability has difficulties with managing tasks.

As predicted, there was no difference in perceived social acceptance of the hypothetical disabled child between children from different social backgrounds. In fact, it was surprising how clear these young children were about the isolation which they thought such a child would experience.



Again, as predicted, attainment of normative concept was correlated with understanding of learning disability. Middle class children were more likely than working class children to have a greater understanding of learning disability and to have achieved normative concept of ability.

Overall, these results indicate that while children from both social backgrounds perceived that the videoed children would be socially isolated, the middle class children were more likely to correctly predict the difficulties the child would have and, as they became older, were more able to explain how tasks would be too difficult for this child. Considering that more middle class children were also able to differentiate between the concepts of difficulty and ability, it is not surprising that this was the category in which the middle class children excelled. It must be remembered that social background was assumed in this study through levels of local unemployment and percentages of children eligible for free school meals. These could be considered rather general measures. This study also does not try to explain how family background might effect young children's understanding of others. It is not clear whether it is the ways in which parents speak to their children, differing parenting styles, different expectations of children, or a combination of all of these. In addition, there may be differences which could be attributable to neighbourhood, such as different opportunities for leisure and social interaction, and different degrees of tolerance of minority groups.

The results of the identification variable may at first seem confusing and at odds with the directional hypothesis. Working class children were more likely to associate themselves with the non-disabled child, yet it was middle class children who were more likely to recognise the disabled child's difficulties. Analysis of children's individual

responses indicated that many of the children's responses which fell into the "other" category (the category which was used by the majority of middle class children) involved identifying the disabled and non-disabled children as being most similar. Since all of the observing children were older than both the videoed children, and age is a salient concept for children of this age (Sigelman, Miller and Whitworth, 1986; Maccoby, 1988), it may have been unattractive to associate oneself with any child of 6, whether or not he or she has a learning disability.

An additional aim of this study was to investigate the use of categories 4 and 5 by older children. Study II questioned why year two/three siblings showed higher use of category 4 and lower use of category 5 while adults showed higher use of category 5 and lower use of category 4. It was suggested that it might be a normal developmental process for older children to use category 4 as an intermediate stage before using category 5. Comparing the results from study II with those from this study, the siblings from years two/three used category 4 as frequently as the year four working class children and less often than the year four middle class children. The children from both schools in this study used this category more often than adults. However, they were still not using category 5 as frequently as adults. The results from this older age group suggests that children may use category 4 more often to explain a child's difficulties before moving to using category 5 as young adults when they tend to resist using labels (category 4 explanations).

## **CHAPTER 13**

### **GENERAL DISCUSSION**

#### **Introduction**

There have been three different strands to this research. The first has been an exploration of children's understanding of learning disability; the second, an investigation of the perceived social acceptability of children with learning disabilities; and the third, an enquiry into the measurement, and attainment, of normative concept of ability. Each of these will be discussed briefly before considering the more general significance of the findings obtained from the studies. These findings will be used to construct a theory of children's development of understanding of learning disability and how this relates to the perceived acceptability of children with learning disabilities. Finally, the implications for families and for schools will be addressed as well as indications for future research.

Early research into young children's understanding of ability was rooted in Piaget's domain-general stage theory of development. Nicholls and Miller (1983) suggested that before the age of 7, because children are still in the pre-operational stage, they tend to base their judgements of their performance of a task upon their own previous performances and make "self-referenced" judgements of ability. If they achieve subsequent higher performance they interpret this as evidence of higher ability. It is not until about the age of 7 that they begin to judge their own performance alongside the performance of peers and are able to make "norm-referenced" judgements of ability. Similarly, numerous studies by Ruble have shown that even if young children are receiving information on their own and peers' performance, they do not use social

comparison feedback until at least 7 years of age (Boggiano and Ruble, 1979; Ruble, Feldman and Boggiano, 1976; Ruble, Boggiano, Feldman and Loebel, 1980). The proposed explanation for this is that pre-operational children tend to be very concrete in their thinking and so will have difficulty understanding a concept as abstract as intelligence. Young children tend to use outer rather than inner attributes, such as appearance, when describing others (Livesley and Bromley, 1973) and are described as only being aware of momentary mental states such as “feeling happy” rather than enduring dispositions such as aggressiveness (Eder, 1990).

More recent research has questioned the domain-general stage theory approach. If assessment tasks are simplified and reduced to the core demands required of the child (or infant), so different results have been found from those suggested by Piaget. For example, by not requiring an infant to search for a hidden object and relying on eye gaze, infants have been shown to acquire object permanence at a much earlier age (Baillargeon, Spelke and Wasserman, 1985). Increasingly, recent research has identified how children develop individual domains of knowledge independently of each other rather than overall structures of knowledge. Peterson and Siegal (1997) found that by comparing normally-developing pre-schoolers, autistic children, deaf children with signing parents and deaf children with non-signing parents, in the domains of physics, biology and psychology, the different groups of children displayed different degrees of development within each domain. Other research has noted the importance of experience in the development of a domain. By studying children who had experienced different models of parenting, it was found that for those who had undergone adoption, this resulted in a more consistent understanding of kin relations

than that gained by children who had not had this experience (Springer, 1999). Family factors, such as socio-economic status, have been found to influence socio-cognitive understanding, including theory of mind and emotional understanding (Cutting and Dunn, 1999). Finally, it has even been suggested that children may develop from abstract to concrete thinking rather than vice versa: by asking young children to identify whether biological and mental diseases are transmitted by physical and/or social contact with others, children appear to move from abstract to concrete theories, rather than from concrete to abstract (Keil, Levin, Richman and Gutheil, 1999).

The studies described here have been based on previous research which suggested that the pre-school siblings of children with learning disabilities display an early understanding of their brothers' and sisters' disabilities which would not be predicted by Piaget's stage theory (Hames, 1997, 1998). From about the ages of 3 or 4 years, the younger siblings of children with severe learning disabilities made comments about their older brothers and sisters which suggested that they were developing some understanding of their cognitive limitations. The hypothesis proposed at the start of this research was that intimate social contact with someone with a learning disability may facilitate earlier abstract understanding of the nature of that disability. It was also proposed that if appropriate methodologies are designed, then more pre-school children may be identified as understanding this abstract concept than would be proposed by Piaget's model.

In addition to examining early understanding of learning disability, the research conducted here has also examined the impact of contact with children with learning disabilities upon non-disabled children's views of the perceived social acceptance of children with disabilities. While observations of children in integrated classrooms have typically identified that children with learning disabilities are often not socially accepted and play in isolated ways, more recent research has suggested that children attending integrated pre-school groups are significantly more accepting of children with disabilities than their peers who have not experienced contact with children with disabilities (Diamond, Hestenes, Carpenter and Innes, 1997; Favazza and Odom, 1996). The proposal investigated here has been that children who have contact with children with learning disabilities, and particularly the siblings of children with learning disabilities will be more socially accepting of children with similar disabilities.

Finally these studies have examined attainment of the normative concept of ability. Since the capacity to judge the relative ability of another is presumably similar to the capacity to judge the relative disability of another, it was hypothesised that understanding of learning disability would be related to attainment of normative concept of ability and that children who show greater understanding of learning disability would be expected to be more likely to have attained normative concept of ability. If intimate social contact facilitates understanding of disability, and social environment has been found to affect rate of acquisition of attainment of normative concept (Butler and Ruzany, 1993), it was hypothesised that intimate social contact would also facilitate attainment of normative concept.

### **Early understanding of learning disability.**

Both studies carried out with adults (chapter 8) and the survey with members of the public (appendix A), have identified that people with learning disabilities are characterised by adults as having different mental abilities. The results from study II (chapter 10) confirmed that children with vocabulary ages of 5 years of age are able to describe the difficulties experienced by a hypothetical child with a learning disability in terms of mental processing difficulties.

The literature on young children's use of mental terms cautions against assuming that these have the same meanings when used by children as when used by adults. Furrow, Moore, Davidge and Chiasson (1992) describe how children use early mental terms such as "know" for conversational rather than mental state references. Hill, Collis and Lewis, (1997) discovered that even 7 year olds did not fully understand that prior knowledge is needed in order for one to "forget". The criteria used in these studies for categorising a response as a mental process were therefore strict. Children who responded to a question about why a task was not or could not be completed, with "she didn't know how" were categorised as offering an explanation in terms of task-specific lack of ability (category 2) rather than an explanation of mental processes (category 5). This was because this phrase was generally only used in relation to one particular task and did not extend to an inability to "not know how" to do other tasks. By demanding strict criteria for assuming that a child was referring to a mental process, these results provide much more information than was previously available on young children's understanding of ability (or disability). Earlier research with such young children has tended to be fairly anecdotal and did not require such strict criteria. For example, Cain and Dweck (1988) described 5 year olds as referring to ability when

they made comments such as “he doesn’t know”. In the categorisation developed here, this would only be considered to be a behavioural description with reference to a task-specific lack of ability which does not necessarily extend to “not knowing” other tasks. This would not constitute a description of a lack of an underlying mental process.

There were some children who were only aged 3, and many aged 4, who were able to make predictions about the difficulties a child would have with tasks after watching and listening to that child for less than 3 minutes. They were also comparing themselves with the non-disabled child on the video and differentiating between the disabled and non-disabled videoed children. Consistent with young children’s naive theories of psychology and biology (Carey, 1987; Hatano and Inagaki, 1994), these results support the view that young children hold a coherent theory of psychology which helps them explain human behaviour. Hatano and Inagaki (1994) suggest that children develop a theory of biology because it is functional: it is useful in everyday problem-solving, helps them make sense of everyday biological phenomena, and is useful in learning. Similarly, by developing the capacity to make predictions about consistent patterns of behaviour and making interpretations about these behaviours, children will be more able to understand their relationships with important others. Particularly in play with peers and siblings, it would seem to be very important that one can predict and understand the behaviour of the other.

Interestingly, social class also plays a part in early and continuing understanding of learning disability. By the age of 7, middle class children were more likely to be able to predict the disabled child’s difficulties than working class children, even when



controlling for differences in vocabulary scores. At this age social class had no impact upon use of categorisation to explain the disabled child's difficulties. By the age of 9, middle class children were using more categories to describe the child's difficulties, including the mature concept of task difficulty, a category which is frequently used by adults. As mentioned earlier, social background has previously been found to effect various aspects of socio-cognitive understanding (Cutting and Dunn, 1999).

However, there were some other young children who were not from a middle class background, had no apparent contact with learning disability, and yet were still able to correctly predict the disabled child's difficulties and use mature explanations. This variability between children suggests that a number of other factors must play a part in early development of understanding of learning disability. While contact with disability will be discussed later, other factors which could play a part include family's use of language, family size, the emphasis within the family upon co-operation and competition, and interest in talking about relative abilities and disabilities. In relation to family's use of language, Dunn, Brown, Slomkowski, Tesla and Youngblade (1991) in their longitudinal study discovered that children who had had more experiences of discussing mental causality of behaviour at 33 months were better at explaining mistaken search on the basis of false belief at 40 months. Size of family may also be important. Perner, Ruffman and Leekam (1994), found that children with more siblings were more likely to succeed at false belief tasks, suggesting that the increased opportunity to directly experience the different perspectives of others leads to an earlier capacity to understand others' perspectives. In particular, talking to an older sibling is especially helpful (Lewis, Freeman, Kyriakidou, Maridaki-Kassotaki and Berridge, 1996). The emphasis within the family upon co-operation and competition

could be another factor. Butler and Ruzany (1993) described how within the classroom environment, the co-operative environment of the kibbutz lead to an earlier appreciation of the normative concept of ability than the competitive environment of an urban school. In a co-operative setting it was suggested that there are more opportunities to directly observe others and so come to an earlier appreciation of the implications of normative behaviour. Pomerantz, Ruble, Frey and Greulich (1995) similarly found differences in usage of social comparison statements between two classes of similar-aged children and suggested that this was related to different teachers' emphasis upon co-operation and competition. And finally, in relation to discussion within the family of relative abilities and disabilities, even having a child in the family with a disability does not ensure that disability will be discussed (or the discussion even allowed). This was realised in the identification and selection of siblings for study II.

### **The effect of social contact upon understanding of learning disability**

Studies II and III investigated the hypothesis that if understanding of learning disability is aided by observing, listening and interacting with someone with a learning disability, then the siblings of children with learning disabilities and children attending integrated schools should gain an earlier understanding of learning disability than similarly-aged children who do not normally have contact with people with learning disabilities. While the results from these studies supported this hypothesis, significant differences were only found between the experimental and control groups in study II and not study III. In study II, there was a trend for reception-age siblings to be more likely to correctly predict that the disabled child on the video would not be able to build another tower; a trend in reception and a significant difference in year one for siblings to be

more likely to correctly predict that the disabled child would not be able to complete the most difficult jigsaw; and significantly more siblings overall showed greater understanding of the disabled child's difficulties. In study III, while children in the integrated school always performed slightly better than their non-integrated peers, the only significant difference was between responses from year one children with higher vocabulary ages, about the disabled child's difficulties in performing the most difficult jigsaw. In relation to categorisation of children's qualitative responses, while study II lent support to the contact hypothesis, study III did not. The siblings from study II illustrated greater use of categories 4 (general description of lack of ability) and 9 (task difficulty). Study IV confirmed that category 4 is a category which is frequently used by older children in explaining a disabled child's difficulties, and development of the categorisation (chapter 7) confirmed that category 9 is frequently used by adults. However, in study III, use of all categories by the children from the integrated and non-integrated schools was similar, (and similar to same-aged controls from study II) and overall there was little use of categories 4, 5 and 9. To summarise, having an older brother or sister with a learning disability results in significantly improved ability to predict another disabled child's difficulties and significantly more use of mature explanations of that child's difficulties. While contact with disabled children at school results in some increased ability to predict another disabled child's difficulties, there were few significant differences and no effect upon explanations for behavioural differences.

As suggested in the discussion following study III, the siblings of children with learning disabilities will have daily opportunities to observe their brothers and sisters, develop an understanding of what they can and cannot do, and make predictions about what

they will and will not be able to do in the future. In the home there may also be frequent opportunities to discuss the brother or sister's difficulties with more mature others and overhear adults' discussions. In an integrated school it is likely that there will be some, though less, opportunities to observe disabled children's difficulties and make predictions about their behaviour. (In the integrated school involved in study III, 11 children had speech and communication disorders, disabilities which would not be obvious to the casual observer. In addition, these children spent the majority of their timetabled day in the separate language unit. Of the four other children with statements, two had Down's Syndrome, one had non-specific learning difficulties and one had behavioural and emotional problems.) There may also be less (if any?) opportunities to discuss these children's difficulties with more mature others. If these children observe differences in some of their peers but then have little opportunity to discuss the reasons for disabled children's difficulties with day-to-day tasks, this could explain why there were no differences between the categories used by children from the integrated and non-integrated schools in explaining the disabled child's difficulties.

It was interesting in study II to note that in response to the individual questions about the disabled child's behaviour, and in overall level of understanding, there were no differences between siblings and controls by year two/three (age 6/7). Previous research into children's understanding of intelligence (Cain and Dweck, 1989) has suggested that children understand the abstract concept of intelligence around the age of 7. If the majority of children of this age are clearly developing the cognitive capacity to understand and explain abstract and internal concepts, then it is not surprising that individual experience is no longer so beneficial.

It could be argued that the siblings in study II showed greater usage of category 4 because they just happened to know words which would not normally be available to the controls e.g. “disabled”, “handicapped” and “autistic”. When these words were used, children were asked to define what they meant and it did seem that the words were used appropriately in describing the disabled child’s difficulties. Having been given access to a language to describe lack of ability, this seemed to assist siblings’ recognition of the disabled child’s difficulties.

The consistent use of more mature explanations of learning disability by the siblings (in study II) up to and including 7 year olds, and the greater understanding of learning disability and its consequences (as measured by individual and combined questions) by children younger than 6-7 years suggests that having a sibling with a learning disability has a major impact on young children’s understanding and explanations of the difficulties experienced by people with learning disabilities. These children seem to have access to an internal model of people’s abilities which is not yet available to their peers who have not had similar experiences. It may be that these young children’s theory of psychology is more developed because of their social experiences. Through observing their brothers and sisters, they come to make predictions about their brothers’ and sisters’ behaviour which help them to understand and make sense of what is happening. Having developed these predictions, they then find it easier to make predictions about others who present similarly. However it appears that it is not only observation and contact with a disabled other that is important, but probably also the opportunity to discuss the difficulties which this disabled other experiences. This hypothesis is based on the premise that there are likely to be more opportunities to discuss a disabled sibling at home, than to discuss peers with special needs at school.

**The effect of contact with learning disability upon ratings of perceived social acceptability of children with learning disabilities.**

While children with learning disabilities have consistently been found to be held in low esteem by their normally-developing peers (Forman, 1987), recent research with children in integrated pre-school programs has found them to be significantly more accepting of children with disabilities than their peers who have not experienced contact with children with disabilities (Diamond, Hestenes, Carpenter and Innes, 1997; Favazza and Odom, 1996). However in the studies discussed here, contact with learning disability was not found to lead to increased ratings of perceived social acceptability of children with learning disabilities (using the same measure as described by Diamond et al., 1997). In study II, when children were asked to rate the perceived social acceptability of a hypothetical child with a learning disability, there were no differences between the ratings given by siblings of children with learning disabilities and controls who had no contact with disability. Similarly, there were no differences in study III between ratings given by children in integrated and non-integrated schools. Previous research with children in integrated settings has been completed with younger children and in a culture where there may have been a different commitment towards true inclusion of children with disabilities (Okagaki, Diamond, Kontos and Hestenes, 1998). The slightly older children in these studies, while they were not suggesting that they did not like children with learning disabilities, still recognised that these children may have difficulties integrating with others. (Indeed, one child in pilot 2 of the development of the methodology, while being very friendly with a child with special needs in his class, explained that this boy had no other friends and gave the disabled child on the video the lowest possible social acceptance score).

Comparing the social acceptability scores given by the year one children in study II and the year one children in study III, it is interesting to note the differences in the range of scores. In study II, 25-33% of year one children perceived that the hypothetical disabled child would have few friends. In study III, approximately 60% of the same aged children held a similar perception. This suggests that there may well be other important factors which influence social acceptability, including parental beliefs and children's attitudes (Okagaki et al., 1998).

**The effect of understanding of learning disability upon ratings of perceived social acceptability of children with learning disabilities.**

The factor which was found to impact upon perceived social acceptability was level of understanding of the disabled child's difficulties. The studies reported here consistently identified that children who had greater understanding of the difficulties of the child on the video were more likely to rate this child as having lower perceived social acceptability. This result was apparent in studies II, III and IV, extending from children in reception (ages 4/5) to year four (ages 8/9) and was not affected by whether or not a child had contact with learning disability. Since studies have shown that the social acceptance of children with disabilities is generally low (Forman, 1987), then as children develop understanding of the practical and mental implications of learning disability so they also become increasingly aware of the social difficulties which children with disabilities encounter.

Once again it should be emphasised that the assessment which was used did not assess children's fondness for a child with a learning disability, but rather was an indication

that as they identified a child's intellectual disabilities, so they were more likely to recognise that this child would have difficulties socialising with others. This would seem to be a realistic evaluation considering the evidence from other studies on the difficulties of children with learning disabilities achieving social acceptance.

### **The effect of contact with learning disability upon the attainment of normative concept of ability**

Since capacity to judge the relative ability of another is similar to the capacity to judge the relative disability of another, and it had been hypothesised that contact with learning disability would lead to earlier understanding of this concept, it was hypothesised that contact with learning disability would also lead to earlier attainment of the normative concept of ability. However so few children were assessed as having achieved normative concept in studies II and III that it was not possible to address this hypothesis.

As mentioned in chapter 6, when the development of this measure was discussed, this improved version of measuring normative ability may still not have been sensitive enough for use with younger children. A number of children were identified who were able to explain correctly and in their own words what it means to be clever, but remained confused about, and were still not able to correctly respond to, the new normative concept questions. While this new measure resulted in more accurate results from 6 year olds, it did not significantly improve the performance of 5 year olds. However, as considered earlier in this discussion, if the majority of children aged 6 or 7 are already developing the cognitive capacity to understand abstract concepts, then contact with disability will no longer be so useful in influencing the development of



normative concept at this age. What is needed is a measure which could more accurately assess 5 year olds' normative concept of ability. In particular, a measure which relies on a number of assessments (just as level of understanding used the combination of three measures in these studies) could well be more accurate.

### **The relationship between understanding of learning disability and attainment of normative concept of ability**

As mentioned in the previous section, capacity to judge relative ability is similar to the capacity to judge relative disability. Capacity to judge relative ability was measured by the assessment of normative concept. Capacity to judge relative disability was measured by a combination of correct responses to questions about the disabled child's abilities. It was hypothesised that children who had understanding of one of these concepts would also achieve understanding of the other. Studies II and III confirmed that understanding of learning disability correlated positively with attainment of normative concept of ability. This both validates the understanding of learning disability measure, but also lends support to the view that true understanding of ability or disability is not just thinking that another can, or cannot, do tasks, but also incorporates understanding of the importance of underlying mental processes.

The relationship between understanding of learning disability and attainment of normative concept can not be explained purely by intellect i.e. cleverer children are more likely to be able to do both, since the siblings in study II gained an earlier understanding of learning disability than their peers who were matched on vocabulary level.

### **The development of young children's understanding of learning disability**

Through using the experimental method described in these studies, it has been possible to identify how some children as young as 3 years have been able to predict the difficulties which would be experienced by a child with severe learning disabilities, after watching and listening to that child for less than 3 minutes. One factor which facilitates understanding, is having an older brother or sister with a learning disability. Younger siblings show significantly improved ability, over their peers, to predict another child's difficulties and make significantly more use of mature explanations for that child's difficulties. For the children who attended the integrated school studied here, contact with children with learning disabilities was not sufficient to produce as significant an impact upon the ability to make predictions about the behaviour of a child with severe learning disabilities, and had no effect upon explanations for that child's behaviour.

Social class also influenced early understanding of learning disability. Children from middle class backgrounds were more likely to be able to predict the disabled child's difficulties from the age of 7, and were using a greater range of explanations for the disabled child's difficulties from the age of 9 than children from working class backgrounds.

Finally there were some children who, for no clearly identifiable reason, were able to correctly predict the disabled child's difficulties and used mature explanations from a surprisingly young age.

Chapter 2 referred to Piaget's view of socio-cognitive development, which suggests that cognitive development facilitates social development and understanding at age-related stages. The findings that siblings of children with learning disabilities show significantly improved understanding of learning disability over same-aged peers who have not had such experiences, and that middle class children have significantly improved understanding over working class children, suggest that changes in understanding do not occur just at age-related stages.

Another possibility is that children develop an understanding of learning disability through social learning. As they observe and watch those around them, and particularly as they watch the actions of another child with a learning disability, so they will choose to imitate certain actions which they find attractive. Other actions which are less common will be seen as less attractive. The social learning model would explain the enhanced understanding shown by siblings of children with learning disabilities who have more opportunities to observe and make comparisons between the actions of more and less able others. This model would also suggest that children in the integrated school studied here may not have had sufficient opportunities to observe children with learning disabilities to enhance their understanding. However it would not explain the improved performance of the middle class children over their working class peers. If this model was to be proposed, it would suggest that more than one process may be at work.

The Vygotskian view of development is that it is children's social experiences which facilitate their cognitive understanding. The developmental process comes not from within the child as suggested by the previous models, but rather via social interaction

and particularly language. In families with a child with a learning disability there is more likely to be discussion about relative abilities and disabilities, both directly with siblings and which siblings will overhear. However the presence of a learning disability in one family member does not automatically mean that there will be discussion about abilities and disabilities, and this could explain why there was such variability between siblings (in studies I and II) in their understanding of learning disability. Similarly, there were some children who displayed remarkable understanding of learning disability while having had no contact. It may have been that these children came from families which encouraged the discussion of relative abilities and disabilities.

There are several possible explanations of how social experiences could contribute to the relationship between socio-economic status and understanding of learning disability. While the relative performance of the middle class children could be credited to the ways in which parents talk to and interact with their children, other differences between middle and working class families could contribute to children's understanding of others. It could be that if middle class families are able to provide, and afford, a wider range of activities for their children, so these children have more opportunities to compare and contrast others. Or it could simply be that different styles of parenting (e.g. authoritarian versus authoritative), which have been found to vary across different family backgrounds (Hoff-Ginsberg and Tardif, 1995) influence understanding of others.

The proposal which is generated from the analyses of the data is that early understanding of the difficulties experienced by another child with a learning disability is mediated by children's social experiences, and particularly language. While contact

and observation of children with learning disabilities, may contribute to the ability to make predictions about what a similar child could and could not do, it is difficult for children to develop mature explanations for the reasons for these difficulties, without opportunities for discussion with informed others. Chronological age will obviously set limits on the ability of a child to observe, discuss and develop an understanding of disability, however given this constant, social experience seems to be effective in accelerating development of understanding. Further exploration of this model could be investigated through interviewing both parents and children from families where there is a child with a learning disability and exploring the extent to which parents discuss the learning disability with their other children. It would also be useful if longitudinal work could be carried out, analysing the discussions which parents have with siblings and the gradual emergence of understanding of learning disability exhibited by these siblings.

### **The relationship between understanding of learning disability and perceived social acceptability**

It has been noted already, that consistently throughout all studies, children who had greater understanding of the difficulties of the child on the video were more likely to rate this child as having lower perceived social acceptability. Since children who had quite different social experiences and contacts with disability, but similar understanding of learning disability, expressed similar degrees of perceived social acceptability, this suggests that it is cognition about the other which leads to changes in perception of social acceptability. As children get older, they become concerned about similarities with others which extend beyond surface similarities, such as similar sense of humour,

sociability, attitudes and intellect (Rubin, Lynch, Coplan, Rose-Krasnor and Booth, 1994). As the children studied here became more aware of the difficulties experienced by children with learning disabilities, and the differences between themselves and children with disabilities, so they became more aware that these children would have difficulties socialising with others.

It has been emphasised earlier (in chapters 7 and 11), that the scale which has been used measured children's perception of whether or not they thought children with learning disabilities would have friends and was in no way a measure of whether the children themselves accepted disabled children. Indeed, the idea for including this measure in the studies arose from the first pilot study where two siblings who were known to be very fond of their brother and sister were seen to be embarrassed to talk about disability in front of their parents. In order to measure children's acceptance of other children with a learning disability, it may have been useful to use a measure such as the Acceptance Scale for Kindergartners (Favazza and Odom, 1996).

### **Limitations of the studies**

A number of limitations of these studies have been raised throughout this work, the most important of which will be repeated here. The proposal which was generated from these studies, was that it is children's social experiences, and communication through language in particular, which facilitate their understanding of learning disability. This was developed because it was assumed that there would be more in-depth conversation concerning disability within a family containing a disabled member than within a school containing a disabled pupil. Conversations regarding disability

were not measured in these studies and would need to be the subject of further investigations in order to confirm this hypothesis.

If the view taken here is correct, and it is language that facilitates understanding and particularly language about a disabled brother or sister, these conclusions are limited by the types of families who have been involved in the studies. Many families who were approached did not agree to be involved in study II and it appeared to be mainly “open-minded” families who consented to involvement. The siblings tended to be close in age to their disabled brothers and sisters, all were younger, and all the disabled children had severe or profound disabilities. Further research needs to be carried out with older siblings who are not so close in age and with the siblings of children with mild learning disabilities, in order to examine whether the same processes are at work.

These studies have also highlighted the great variability in siblings’ understanding, suggesting that other influences may be at play. Chapter 10 has already referred to the variability among families with a child with a learning disability and the fact that this is not an homogenous group. For example, there were differences in the extent of the child’s disability; there may have been differences in the health of the disabled children; there would have been differences in the behaviour displayed by the displayed children; and the time at which the disability was recognised and diagnosed is likely to have varied. From parents’ points of view, the impact of having a child with a disability can vary and can affect marital relationships and mental health. All of these could influence family behaviour, discussion and the development of understanding among siblings. It therefore needs to be borne in mind that whatever model is proposed, will be

appropriate to different families to greater or lesser degrees, dependent among other influences within the family.

A number of points also need to be raised in relation to the specific materials which were used in the studies. It has not been children's general understanding of learning disability which has been investigated but rather children's understanding of the specific difficulties experienced by the children whom they observed on the videos. This is particularly important in relation to the categories which children used in describing these children's difficulties. Had they observed different children, then different categories, in different proportions, may have resulted. This could be examined through further research with videos of other children with severe learning disabilities. The investigation of the measure when checking for gender differences (chapter 9) also identified that the girl on the video was not considered to be as verbally able as the boy. While further analysis of the results from this study suggested that there were no reliable significant differences in response to subsequent questions about the disabled children's perceived abilities, it was hoped that this would not have a significant impact upon further results. However, the method would have been more robust had both children been considered to be similarly disabled.

The particular method which was chosen for these studies will have had a major impact on the results, as Goodman (1990) noted in her research into different methods of enquiry. Diamond and Hestenes (1994) using photographs to investigate knowledge of various disabilities, suggested that contact with disability lead to increased knowledge, whereas Diamond, Hestenes, Carpenter and Innes (1997) using dolls, found that contact with disability was unrelated to level of understanding. It was



decided to use video of real children with learning disabilities in the current series of studies. The observing children could well have been embarrassed to talk about the disabilities of other children. Certainly in study II it was noted that when children were asked to explain why they thought the disabled child could complete a tower after failing to build a previous tower, they were at pains to offer explanations. It may have been that if dolls had been used, children may have felt more at ease in expressing criticism of another.

Finally, it was disappointing that the general methodology used was not completely appropriate for the nursery-aged children in study II and that the normative concept questions may still not have been clear enough for 5 year olds. Further work is still needed to develop measures which are sensitive enough to be used accurately with young children.

### **Implications for families and schools**

This research opened with speculation about the anxieties which might be expressed by parents, siblings and teachers regarding how they should explain disability issues to young children. The findings from these studies suggest a number of ways forward.

In families where there is general and open discussion of a child's disabilities, it is quite likely that siblings will have a good understanding of learning disability from an early age. Through observing, listening and asking (often) few questions, siblings will gain an accurate understanding of the difficulties which their brother or sister experiences and the reasons for these. As well as being able to predict and understand the functional difficulties which their brother or sister will encounter, siblings also develop

an early (and correct) understanding of the social implications of the disability. Siblings may express awareness and concerns about the social acceptability of their disabled brother or sister at an earlier age than parents expect, and are likely to become very protective of their brother or sister as a consequence of this. Parents need to be ready early on to respond honestly and openly to siblings' comments and questions about the social responses of others towards their disabled brother or sister.

If parents are honest and open with their non-disabled children, then they in turn will find it easier to use appropriate terminology to explain their brother or sister's disability to their friends. Parents may need to support and encourage their non-disabled children when the children are trying to explain issues to their friends. If friends have some contact with the disabled child then this may also help the friends to understand what it means to have a disability.

It is likely that siblings who gain an early understanding of their brother or sister's disability are also likely to be more aware at an early age of their own ability in relation to their peers. If siblings become conscious of their own relative low ability in certain subjects, this could result in lowered self-esteem. Parents need to be attentive to this possibility and respond to siblings' concerns in a sensitive manner. It may also be appropriate to raise this issue with siblings' teachers.

Finally, if teachers wish to promote disability issues at school, then it will be easier for other children to learn and understand if they hear about the experiences of a real disabled child and even watch videos of this child. Teachers need to recognise that with understanding of disability comes awareness of the perceived low social

acceptability of children with learning disabilities. While children might (accurately) express the view that children with learning disabilities may not have many friends, this should not be confused with a lack of compassion or caring towards disabled children. If children with disabilities are integrated into mainstream school, then the encouragement of opportunities to actively discuss the implications of disability will facilitate the understanding of disability amongst mainstream peers, and particularly amongst the youngest children in the school.

### **Implications for future work**

Reference has been made to a number of ways in which further research could be carried out in this field. This final section emphasises some of these. It has been noted already that the assumption that there will be more in-depth conversation concerning disability within families containing a handicapped member may not be true. It was therefore hypothesised that variability between siblings' understanding of disability was related to the degree to which discussion is encouraged. Further work is needed to examine the ways in which parents talk to siblings about their disabled brothers and sisters, and relate this to siblings' subsequent understanding. This methodology could also examine parents' understanding, as a further assumption had been made that parents would have a good understanding of learning disability. In this way it will be more possible to examine the hypothesis that understanding of learning disability is mediated by verbal interaction.

It is also recognised that by using the quantitative techniques described in these studies, much of the personal stories of children have been lost (though briefly alluded to in appendix F when describing siblings' and peers' explanations for lack of ability).

The siblings who were described in chapter 4 are currently part of a separate longitudinal study. While some of their responses have been analysed using quantitative techniques for this current research, the overall design of this longitudinal study was to produce the siblings' emerging stories from the ages of 4 or 5, into adolescence. In addition, it would be helpful if future research concentrated in more depth on the personal experiences of preschool children using qualitative and quantitative methodologies for investigation. Ideally, systematic observation of interaction between siblings and between children and their parents should provide rich and relevant data of the sort obtained by Dunn and her colleagues (e.g. Dunn, 1993).

## **LIST OF APPENDICES**

- Appendix A. Adults' understanding of learning disability.
- Appendix B. Study I - categorisation of responses to concepts of learning disability protocol.
- Appendix C. Study I - categorisation of responses to implications of learning disability protocol.
- Appendix D. Development of methodology II - child interview used in studies II, III and IV.
- Appendix E. Development of methodology III - adult questionnaire.
- Appendix F. Study II - children's responses to qualitative questions.

## **Appendix A**

### **ADULTS' UNDERSTANDING OF LEARNING DISABILITY**

#### **Introduction**

Chapter 4 identified the paucity of research conducted into people's understanding of learning disability. While Sternberg, Conway, Ketron and Bernstein (1981) investigated the general public's understanding of intelligence there is very little information available on the general public's understanding of learning disability. If children are to be questioned on their understanding of learning disability, and interpretations made about their level of understanding, this research is best placed within the context of the adult general public's level of understanding (Glasberg, 2000). The following study attempts to fill this gap.

The one major investigation of the general public's implicit theories of intelligence - those theories which reside in people's minds - discovered that both the general public, and experts, view intelligence as a combination of practical problem-solving ability, verbal ability and motivation (with the general public also thinking that social competence is an important factor) (Sternberg et al., 1981). Of the few studies identified and reviewed by Cain and Dweck (1989), one conducted with children (6 - 12 year olds) on their conceptions of intelligence (Yussen and Kane, 1985) came up with similar factors. The majority of 12 year olds believed that knowledge (verbal skills) and reasoning skills (practical problem-solving) were important. Some also cited the importance of experience and motivation.

What research there has been on conceptions of learning disability has mainly been conducted with children, usually reflecting interest in their understanding of their disabled peers as educational facilities move increasingly towards inclusive practices (Guralnick and Groom, 1987). Only one of these studies (Conant and Budoff, 1983) has included a small group of adults. Conant and Budoff interviewed 103 people, whom they divided into a number of different age groups; the youngest having a mean age of 3.4 years and the only group of adults being 11 professional 30 year olds. All participants were said to have had minimal contact with disabled people. They questioned respondents about five types of disability: blindness, deafness, orthopaedic disabilities, mental retardation (learning disabilities) and "psychological disturbance" and examined the extent of their knowledge of the cause and prognosis of these. While children found the physical disabilities most easy to understand and to explain, and their ability to describe and cite examples of all disabilities increased as children became older, the adults in this investigation were said to have clear understanding of each of these disabilities. Two other studies (Weir, 1981; MORI, 1982), while concentrating more on attitudes towards people with learning disabilities and other difficulties, identified that there was some confusion between learning disabilities and mental illness. However, one of these studies (Weir, 1981) recognised that there was general confusion at the time regarding the terms in general use: handicap and disability.

The aim of this study was to carry out the first systematic examination of the general public's views of learning disability<sup>3</sup>. The design was a structured questionnaire, allowing for the collection of both quantitative and qualitative data, based on the studies of Sternberg et al., (1981) and Yussen and Kane (1985).

### **Method**

This study was carried out in public areas in a large industrial city which has a significant student population. The interviewers were three psychology graduates in their twenties, one male and two females. A structured questionnaire was used (see end of appendix) which required respondents to give both yes/no responses and to expand upon their answers. In this way, both quantitative and qualitative analysis could be used. Respondents were asked to define learning disability, to consider whether learning disability has physical, social, behavioural and intellectual components, to estimate how long a learning disability would last, and to distinguish between people with learning disabilities, physical disabilities and mental health problems.

Participants were approached in shopping areas and in GP surgeries and asked if they would participate in the study. The reason for choosing different areas was based on Sternberg's finding that different populations, drawn from different locations, held slightly different conceptions of intelligence. Questions were read to participants and their responses recorded, along with their gender and their age group. In total, 187 respondents were questioned, 47% male and 53% female. Thirty two per cent were in the 18-24 age group (the large number in this group reflected the large student population), 43% were in the 25-54 age group and 25% in the 55 and over age group. 67% of participants were interviewed in shopping areas and 33% in GP surgeries.

### **Results**

Location had no effect upon participants' responses and so responses were combined. Neither were there differences between male and female respondents nor between responses obtained by the male and the female interviewers. There were some differences between the different age groups.

When asked whether people with learning disabilities have different mental abilities from people without learning disabilities, 67% responded yes. When asked if they have different physical abilities, 57% responded no. Opinion on whether people with learning disabilities have different social abilities was divided, with 39% saying definitely yes, 38% saying definitely no and 20% saying maybe. Seventy nine per cent said that they do not look different, 44% said that they do not talk differently and 48% said that they do not act differently. Eighty four per cent of respondents knew that there is a difference between a learning disability and a physical disability and 79% knew that there is a difference between a learning disability and a mental health problem. Fifty nine per cent knew that a learning disability is a permanent condition.

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<sup>3</sup> While it is recognised that learning disability has different meanings in this country and the United States, and the term is used in slightly different ways in educational and health settings in this country, this study aimed to investigate the general public's understanding of global learning disabilities.

There were only two significant differences between the age groups. When initially asked whether people with learning disabilities are different to people without learning disabilities, participants aged 55 and over were significantly more likely than respondents in the other two age groups to definitely say yes ( $\chi^2(4)=9.471$ ,  $p=0.05$ ). Participants aged between 25-54 were more likely than other age groups to recognise that someone with a learning disability may (but not always) have physical disabilities ( $\chi^2(4)=14.241$ ,  $p<0.01$ ).

When asked to explain learning disabilities in their own words only 6 participants (3.2%) said that they were unable to do this. All other responses, including multiple responses, were examined and categories devised based on these responses. After allocating responses to the categories, all responses were then independently categorised by another coder, reaching an inter-rater agreement of 86%. Disagreements in categorisation were resolved and then some categories which had caused most dispute and some which contained few responses were collapsed. The categorisation which was devised is described below:

*Category 1 - "difficulties in learning"*

This was the category which was used most often (23%).

*Category 2 - "dyslexia/ reading difficulties"*

Twenty one per cent of responses fell into this category. Respondents usually referred to dyslexia, occasionally to problems with reading. Analysis of further responses from participants who used this category suggested that they were not describing dyslexia in its commonly-used form but were confusing it with global learning disability.

*Category 3 - "other label"*

Fourteen per cent of responses suggested alternative labels, the most common being "autism", followed by "slow", "Down's Syndrome", "handicapped" and "backward".

*Category 4 - "inability to function normally"*

This was referred to in 10% of responses, including explanations such as "can't do things as well as normal people" and "problems with everyday tasks".

*Category 5 - "difficulties understanding"*

Nine per cent of responses fell into this category.

*Category 6 - "disabled"*

Five per cent of responses just explained that learning disability meant "disabled".

*Category 7 - "inappropriate label"*

Four per cent gave an alternative label which was not completely appropriate, usually referring to a physical disability e.g. "blind".

*Category 8 - "language/communication problems"*

Four per cent used this explanation.

*Category 9 - "mental problems"*

Three per cent referred to "mental problems" or "mental health".



### *Category 10 - miscellaneous*

Eight per cent of responses could not be categorised elsewhere, including two references to “concentration problems”, three ambiguous references which could be summarised as “slow at skills”, three references to “difficulties at school”, one to “developmental problems”, one to “behaviour problems” and one to “low IQ”.

Participants in the 18-24 age band were more likely to define learning disabilities as difficulties in learning (category 1) than 25-54 year olds ( $\chi^2(1) = 7.015$ ,  $p < 0.05$ ) and people in the 55 and over age group ( $\chi^2(1) = 3.385$ ,  $p < 0.01$ ). Those in the 55 and over group were more likely than 18-24 year olds to offer another label as an explanation ( $\chi^2(1) = 3.543$ ,  $p < 0.01$ ). More younger respondents simply used the term disabled (category 6) with the difference between 18-24 year olds and the 55 and over group approaching significance ( $\chi^2(1) = 2.727$ ,  $p < 0.01$ ). Other than these differences, explanations from the different age groups were similar.

### **Discussion**

The general public’s ability to distinguish between disabilities appears to be quite good, since nearly nine out of ten respondents knew that there is a difference between a physical and a learning disability and approximately eight out of ten knew of the difference between a learning disability and a mental health problem. However, when asked more specific questions about learning disability, respondents were not as sure. Approximately two thirds of respondents recognised that people with learning disabilities have different mental abilities from people without learning disabilities and nearly two thirds said that they do not have different physical abilities. Interestingly, it was the group in the middle age band who were most likely to recognise that people with learning disabilities sometimes have additional physical disabilities. Once again, nearly two thirds recognised that a learning disability is a permanent condition.

The current definition of a global learning disability in this country is: reduced ability to understand new or complex information, to learn new skills (impaired intelligence); reduced ability to cope independently (impaired social functioning); which started before adulthood, with a lasting effect on development (DOH, 1995). While none of the adults in this survey was able to give such a comprehensive explanation of learning disability, 49% were able to offer one or more aspects of this definition in their explanation.

Overall these results suggest that at least half the adult population has a reasonably good understanding of learning disability and is aware of at least one of the following: that a learning disability involves difficulty in learning, understanding and coping independently; that it is a permanent condition; and that it is different from a physical disability and a mental health problem. Whereas previous research has cited the lack of opportunities for contact with people with disabilities as being the cause of poor understanding (McConkey, McCormack and McNaughton, 1983), these findings possibly reflect the greater “visibility” of people with various disabilities and mental health problems in our society.

It was particularly surprising to find the high incidence of people who described dyslexia as being a global learning disability. The implication of this for people who

suffer from dyslexia may be that they will be considered by many others as having concurrent difficulties normally associated with learning disability. Indeed, researchers in the field of dyslexia (Riddick, 1995) have found that prior to their confirmation as dyslexic, individuals report that they feel they are treated as though they have a global learning disability.

It was heartening to find minimal use of old-fashioned and derisory terms, such as "retarded" and "backward" when recent surveys continue to find use of such terms by the media (Scope, 2000). There were also some categories which were interestingly absent: only one person seemed to associate learning disability with behaviour problems and only one used an explanation that might be used by a clinical psychologist, that it is associated with low IQ!

Having identified that at least half of the adult general public has some understanding of the concept of global learning disability, this can act as a context in which to further investigate the knowledge and understanding of children.

## Questionnaire

Int. Ref.....  
Place.....

Age 18-24...25-34...35-44...45-54...65 and over...  
Sex - M/F

### GENERAL PUBLIC QUESTIONNAIRE

1. Do you live in Newcastle or North Tyneside areas ? Y/N
2. What does "learning disability" mean ?

Anything else?

What other word would you prefer to use, if any, to describe learning disability ?

3. If you meet someone with a learning disability, are they different compared to someone without a disability ? Y/N

- 4a) Would they look any different ? Y/N  
If you answered yes, can you say what you think the difference/s is/are?

- b) Would they talk differently ? Y/N  
If you answered yes, can you say what you think the difference/s is/are

- c) Would they act differently ? Y/N  
If you answered yes, can you say what you think the difference/s is/are ?

5. Would they do anything else differently compared to people without a learning disability ?

**Y/N**

If you answered yes, can you say what you think the difference/s is/are ?

6. Would they have different mental abilities ? **Y/N**

e.g. ability to learn, remember things, understand things, talk

7. Would they have different physical abilities ? **Y/N**

e.g. ability to see, run, lift or jump

8. Would they have different social abilities ? **Y/N**

e.g. sharing with others, having good manners, smiling a lot, helping others

9. How long will a person have a learning disability ?

10. Is there a difference between a learning disability and a physical disability ? **Y/N**

If you answered yes, can you say what you think the difference/s is/are ?

11. Can someone with a learning disability also have a physical disability ? **Y/N**

Does someone with a learning disability **always** have a physical disability ? **Y/N**

12. Can someone with a physical disability also have a learning disability ? **Y/N**

Does someone with a physical disability **always** have a learning disability ? **Y/N**

13. Is there a difference between a disability and a mental health problem ? **Y/N**

If you answered yes, can you say what you think the difference/s is/are ?

14. Are you happy for this information to be used, confidentially, for the study ? **Y/N**

## **Appendix B**

### **Study I - categorisation of responses to concepts of learning disability protocol**

#### *Incomprehension (0)*

Siblings demonstrate no knowledge of their sibling's disorder or its cause. Example:

Q: What is handicapped? A: I don't know?

#### *Phenomenism (1)*

Responses are limited to their own experiences, or to information which they have heard and repeated. Siblings identify specific and observable features, tending to focus on one at a time. Responses may be true, but cannot be elaborated, suggesting that they are repeating associations which they have heard. Example: Q: What is handicapped? A: Not talking. Q: Tell me more. A: I don't know any more (One symptom, specific to sibling).

#### *Contagion (2)*

Siblings may focus on a single symptom, but now the symptom is relevant. They may identify a cause of their brother or sister's disability, but cannot explain how the cause leads to the effect. The cause may be close to, seen as "catching", but no mechanism of "catching" is explained. Example: Q: What is special needs? A: She can't talk. There are lots of children in her class who can't talk properly. (One symptom, not specific to sibling)

### *Contamination (3)*

Siblings start to think about more than one symptom at a time, though reasoning is still dependant upon personally experienced events. The body may be identified as mediator between the cause and symptoms, though no specific process involving the body part is described. Example: Q: What is disabled? A: She can't ride a bike, cut up her food, count. She can't do lots of things that normal people can do (Multiple symptoms noted).

### *Internalisation (4)*

The focus at this stage is inside the body. However, attempts to explain how a body part works or how symptoms are caused are concrete and vague. Example: Q: What is disabled? A: Something went wrong with her brain when she was born and now she can't talk.

### *Formal operational (5)*

Siblings are no longer dependent upon their own experiences. They can identify gaps in their own knowledge. They can identify more detailed internal processes. They may also focus on emotions. Example: Q: How do children become handicapped? A: Her brain was damaged when she was born so that the wrong messages are sent round her body now and she is not able to walk and to talk.

## **Appendix C**

### **Study I - categorisation of responses to implications of learning disability protocol**

#### *Incomprehension (0)*

Siblings have no idea, or have never considered the implications, that a learning disability will have on them or their brother or sister. Example: Q: How does being handicapped make your sister's life different? A: I don't know.

#### *Pre-operational (1)*

Responses are limited to their own experiences, or to information which they have heard and repeated. Responses may be true, but cannot be elaborated, suggesting that they are repeating what they have heard and do not truly understand this. Example: Q: When she grows up, will being handicapped make her life different? A: She'll need someone to look after her. Q: Tell me more about that. A: I don't know (Repeating what has been told).

#### *Concrete operational (2)*

Siblings start to think about more than one symptom at a time and recognise that they are all related to one cause. They may also begin to see the relationship between a symptom of learning disability and how it affects their brother or sister. Example: Q: How does will having special needs make your sister's life different? A: She still won't be able ride a bike, cut up her food, count. (Multiple symptoms).

*Formal operational (3)*

Siblings are no longer dependent upon their own experiences and can use their imagination to explain how life would be different without the learning disability. When asked about the future, they are aware that the learning disability will have some effect upon their brother or sister's life. Example: Q: When she grows up will her special needs make her life different? A: She won't be able to live on her own because she will still need help from someone, like she does now, even though she is a grown-up.

## Appendix D

NAME:

CODE:

DOB:

AGE:

DATE:

### Child Questions

#### WARM-UP

Names and ages of brothers and sisters.....Jigsaws, tower and counting. Did you build a proper tower using all the cups?..... Did you count all your fingers, upto 10? .....

#### VIDEO

I'm going to show you a video of 2 children \_\_\_\_\_ and \_\_\_\_\_. Here is \_\_\_\_\_ and here is \_\_\_\_\_. They're both 6 and they're both playing with me on the video. I want you to watch carefully and tell me all the things that are different between them.

1 .....

2 Which one's....?Did \_\_\_\_\_ count all his/her fingers, upto 10?.....Y N

3 Why not? .....CAN'T

4 Did \_\_\_\_\_ build a proper tower using all the cups? .....Y N

5 Why not? .....CAN'T

6 Could \_\_\_\_\_ build a tower with these cups? .....Y N

7 Why/ why not? .....CAN'T

8 Could you build a tower with these cups? .....Y N

9 How come you can and he/she can't? .....

10 Could \_\_\_\_\_ do this jigsaw, this jigsaw? .....EASY HARD

11 Why not?.....CAN'T

12 Did you do these jigsaws? .....Y N

13 How come you can and he/she can't? .....

14 Is \_\_\_\_\_ like a 6 year old or like another number? .....

15 What can that number do? ..... NOT SO CLEVER

16 Is \_\_\_\_\_ like a girl/boy you know? ..... ANOTHER LD

#### STIGMA

17 This girl/boy doesn't have very many friends to play with. This girl/boy has lots of friends to play with. Which of these girls/boys is most like \_\_\_\_\_ ?..LOTS FEW

18 Lots of children share their toys with this girl/boy. A few children share their toys with this girl/boy. Which of these girls/boys is most like \_\_\_\_\_ ?.....LOTS FEW



19 This girl/boy doesn't have many friends to play games with. This girl/boy has lots of friends to play games with. Which of these girls/boys is most like \_\_\_\_\_ ? .....LOTS FEW

20 This girl/boy has lots of friends to play with on the playground. This girl/boy doesn't have very many friends to play with on the playground. Which of these girls/boys is most like \_\_\_\_\_ ? .....LOTS FEW

21 This girl/boy gets lonely sometimes because the other children don't ask her/him to play. This girl/boy usually gets asked to play with other children. Which of these girls/boys is most like \_\_\_\_\_ ? .....LOTS FEW

22 A lot of children want to sit next to this girl/boy. A few children want to sit next to this girl/boy. Which of these girls/boys is most like \_\_\_\_\_ ? .....LOTS FEW

### BOXES

There are jigsaws in these boxes. 9 girls/boys can do this jigsaw, 7 can do this, 4 can do this one and only 1 can do this one.

23 Which one can nearly all the girls/boys do? .... can only one girl/boy do? .... a few more? .... and a few more?.....Y N

24 Which jigsaw can nearly all the girls/boys do?

If lots of girls/boys can do this jigsaw, do you think it is a hard jigsaw or an easy one?

Which jigsaw can only one girl/boy do?

If only one girl/boy can do this jigsaw do you think it is a hard jigsaw or an easy one?

So which is the hard jigsaw? Which is the easy jigsaw?

Which one can only very clever girls/boys do?

How can you tell you'd have to be really clever to do that one?.....2 1 0

25 Which jigsaw do you think you can do? .....9 7 4 1

26 Why? .....

27 Which one's ....?Which jigsaw do you think s/he can do? .....9 7 4 1

28 Why? .....

29 And which one's .....? Which jigsaw can s/he do? .....9 7 4 1

30 Why? .....

31 Why can they do different jigsaws? .....DIFFERENT ABILITIES

### JIGSAWS

32 Which is the easiest jigsaw? .....Y N

33 Which is the hardest jigsaw? .....Y N

## Appendix E

**Please circle your age group and your gender**

**Age: 16-24, 25-34, 35+**

**Gender: M/F**

This is part of an experiment looking at children's and adults' responses to a video. You are going to see a video of two children, Eleanor and Josephine, performing the same tasks with the same adult. Both children are six years old. After you have seen the video could you complete the following questions. Questions 3, 4 and 5 refer to the toys at the front of the room. If you use any labels or technical terms, could you explain what these mean.

1. Did Josephine count all her fingers, up to 10? Y N  
Why/Why not? .....  
.....
2. Did Josephine build a proper tower using all the cups? Y N  
Why/Why not? .....  
.....
3. Could Josephine build a tower with the cups at the front? Y N  
Why/Why not? .....  
.....
4. Could Josephine do jigsaw 1 at the front? Y N  
Why/Why not? .....  
.....
5. Could Josephine do jigsaw 2 at the front? Y N  
Why/Why not? .....  
.....
6. Is Josephine like a 6 year old or like another age? <6 6 >6

## Appendix F

### Children's responses to qualitative questions

#### Category 4

Warren, aged 51 months (vocabulary age 45 months).

*I'm clever. I can do all the jigsaws in the world.* (in response to question 13)

Stephen, aged 66 months (vocabulary age 46 months), older disabled sister.

*Because I'm clever and he's not clever.* (in response to question 13)

Jane, aged 60 months (vocabulary age 49 months)

*She's not clever like me. If you're not clever you can't do jigsaws.* (in response to question 13)

Henry, aged 55 months (vocabulary age 51 months), older disabled brother.

*He's "specialer". Can't talk properly. Like my Edward.* (in response to question 3)

*He's special. He can't talk and can't make things.* (in response to question 13)

Liam, aged 62 months (vocabulary age 53 months), older disabled sister.

*David done it right and he done it wrong. He was disabled. He looked like he was disabled - can't build anything properly.* (in response to question 1)

Lee, aged 61 months (vocabulary age 54 months)

*They can't do the same as me.* (in response to question 12)

Nicholas, aged 63 months (vocabulary age 60 months), older disabled brother.

*He should be better than me.* (in response to question 9)

Luke, aged 64 months (vocabulary age 75 months), older disabled sister.

*He's good at building and counting, he's not good.* (in response to question 1)

Olivia, aged 75 months (vocabulary age 75 months), older disabled brother.

*She's autistic. Got something wrong with her brain. Some can't walk or talk. She couldn't build a tower properly.* (in response to question 3)

Amy, aged 79 months (vocabulary age 79 months), older disabled brother.

*One was handicapped. My Steven has blocks and he can't do it properly and my Steven's handicapped.* (in response to question 1)

*Handicapped is you can't do as good things as us but you are very clever.* (in response to question 9)

Kieran, aged 66 months (vocabulary age 81 months).

*He wasn't very good at it, putting the different numbers in the wrong places. He's not very clever, doing it wrong.* (in response to question 3)

Lee, aged 83 months (vocabulary age 83 months), older disabled brother.

*He went one, two, three, four, five, six, seven, eight, ten, then all sorts. Looked disabled. When born had a broken heart or something wrong with you.* (in response to question 3)

Liam, aged 82 months (vocabulary age 93 months), older disabled brother.

*I haven't got problems.* (in response to question 9)

Jason, aged 73 months (vocabulary age 95 months), older disabled brother.

*He was born too soon and can't talk, like Matthew.* (in response to question 3)

Shaun, aged 78 months (vocabulary age 96 months), older disabled brother

*One was autistic and one was not. One couldn't count his fingers and couldn't build a tower.* (in response to question 1)

Bethany, aged 80 months (vocabulary age 103 months).

*Because she's not that clever, like Michael in my class. He does silly things, don't do work and says silly things.* (in response to question 3)

Luke, aged 92 months (vocabulary age 110 months).

*He wasn't as clever. It means you know quite a lot. Craig didn't know as much as David. He didn't say which school he went to.* (in response to question 3)

## **Category 5**

Megan, aged 58 months (vocabulary age 33 months), older disabled sister.

*She forgot.* (in response to question 3)

Stephen, aged 66 months (vocabulary age 46 months), older disabled sister.

*He built them silly because he forgot.* (in response to question 7)

*He'd put that one there and do it wrong. He'd forget to put them in the right place.*

(in response to question 11)

Joanna, aged 67 months (vocabulary age 62 months).

*She'd forgotten to count her fingers.* (in response to question 5)

Julie-Ann, aged 66 months (vocabulary age 67 months), older disabled brother.

*She can't think that.* (in response to question 3)

Sarah, aged 57 months (vocabulary age 69 months), older disabled brother.

*She doesn't understand.* (in response to questions 9 and 13).

Adam, aged 81 months (vocabulary age 70 months), older disabled sister.

*He thinks it's too hard.* (in response to question 13)

Kieran, aged 66 months (vocabulary age 81 months).

*He kept putting the cups in the wrong places. He's not very good at it. Doing that wrong because he forgot.* (in response to question 5)

Abbey, aged 75 months (vocabulary age 81 months).

*She forgot.* (in response to question 5)

*She didn't remember.* (in response to question 9)

Liam, aged 82 months (vocabulary age 93 months), older disabled brother.

*He might think the pieces get mixed up because they look the same.* (in response to question 11)

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